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AN EXPERIMENTAL INVESTIGATION OF LIPOVACCINES

A PRELIMINARY NOTE *

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The advances that have been made in medicine and surgery as a result of the war in Europe have been, almost without exception, in the technical improvement of methods before used or in the final and practical demonstration of the efficacy of certain measures of prophylaxis (such as typhoid vaccination), the basis of which has been previously established. Among the advances has been the preparation of lipovaccines, a subject that so far has received little or no attention in this country, but one that seems to us to be of great value not alone in the relation to immediate medico-military problems but also in the possibilities that it offers in the prophylaxis of a number of infectious diseases in which vaccine immunization heretofore has been of limited applicability.

It is rather curious that the obvious expediency of preparing bacterial vaccines in a vehicle less rapidly absorbed than physiologic sodium chlorid solution has been completely ignored in the technic of vaccine work, despite the fact that an ever increasing number of pharmacologic preparations in oil have become available for subcutaneous and intramuscular injections. Wassermann, it is true, made up a staphylococcus vaccine in the form of an unguentum, but it was with the purpose of making the vaccine available to the patient without hypodermic injection. Zeuner used soap solutions in making a tuberculin, but here again the object was the complete solution of the tubercle bacillus, not an alteration of the rate of absorption. Whitmore made similar experiments in leprosy. Le Moignic and Pinoy[1] grasped the evident possibilities that presented themselves in the lipovaccines for use in prophylactic work. They used at first a mixture of liquid petrolatum and lanolin as a base for the vaccine; later, however, vegetable oils were substituted. Achard and Foix[2] reported favorably on similar experiments; they had used olive oil in their work; they noted, however, that the oil, if heated at too high a temperature during sterilization, seemed to cause abscess formation at times.

ADVANTAGES OF LIPOVACCINES

Among the advantages derived from the use of oil vaccines may be considered: (*a*) the diminution of both the local and the systemic reaction; (*b*) the feasibility of giving sufficient vaccine at a single injection properly to immunize the individual; (*c*) the persistence in the individual of a focus from which the immunization proceeds over a period of several months with a resulting lengthening of the period of immunity; (*d*) the actual detoxicating effects of certain lipoids that can be incorporated in the vaccine, and (*e*) the prevention of autolysis and deterioration of the vaccine.

The vaccine used in the Army for prophylaxis against typhoid and paratyphoid fevers contains 1,000 million typhoid and 750 million each of paratyphoid A and B per cubic centimeter, given in three doses, the first of 0.5 c.c., the second and third of 1 c.c. each, the total number of organisms used being, therefore, 6,250 million. This method of immunization, as introduced by Colonel Russell, gives practically complete protection for a period of several years.

The reactions following the injections, however, are at times rather severe. A period of malaise extending for from twelve to forty-eight hours is not uncommon; the local reaction, as a rule, is comparatively negligible.

When a dose of 7,500 million organisms is prepared as a lipovaccine, either in olive oil or oil of sweet almonds, it can be given with less local reaction than that which follows a single dose of the aqueous vaccine, and an almost entire absence of constitutional effects.

The possibility of giving the entire immunizing dose at one time is, for military purposes, an advantage in relieving the medical service from a not inconsiderable routine of injections and record work as well.

The persisting focus of slowly absorbing vaccine may be of certain benefit, too, in the effort to protect against diseases in which prophylactic immunization, as heretofore observed, has had but transitory value. Wright, in working with aqueous pneumococcus vaccination of the Rand laborers, found that protective effects seemed to disappear after a period of three months. With a lipovaccine, absorbing over a long period of time, the immunity might conceivably be prolonged. The same phenomenon may be expected to apply to meningococcus vaccination.

Lipovaccines make it possible to take advantage of the distinct detoxicating effects of certain lipoid combinations, and in this way lessen the reaction, quite apart from the delayed absorption. It is well recognized that the true toxins are lipotropic, detoxication by means of brain substance, by lecithin, by choles-

* From the Department of Pathology, Army Medical School.

1. Le Moignic and Pinoy: Compt. rend. Soc. de biol., 1916, **79**, 201, 352.
2. Achard and Foix: Compt. rend. Soc. de biol., 1916, **79**, 209.

terols, and by soaps having been carefully studied. Even when we are dealing with bacterial endotoxins and the intoxication arising from the splitting of bacterial proteins, it is very probable that some lipoids can act as inhibiting and neutralizing factors. The incorporation of lanolin (consisting largely of cholesterols and fatty acids) in the lipovaccines very probably is of value in this direction.

Finally, and from a technical point of view, a not unimportant advantage in the lipovaccine lies in the fact that autolysis of the organisms is largely prevented and the deterioration of the vaccine reduced. In routine work the organisms for vaccine are killed at a temperature of 53 C., leaving the intracellular enzymes of the bacteria partially intact and permitting autolytic processes to continue. This is particularly true in such coccus forms as the pneumococcus and meningococcus. In the preparations of the lipovaccines the young cultures are rapidly dried—within a half hour after scraping from the agar—and either are kept dry until used or ground and mixed with the proper oils immediately, in which condition autolysis is largely held in abeyance.

PREPARATION

In view of the possible advantages presented, we have prepared a series of vaccines in this laboratory for experimental study. These include:

A. Typhoid-paratyphoid (A and B).
B. Pneumococcus (Types I, II and III).
C. Meningococcus (Types 1, 10, 30 and 60).
D. Dysentery (Shiga, Flexner and Y).

The method of preparation that we have tentatively employed in making these vaccines is, briefly, as follows:

Bacteria are grown for about twenty hours in large Petri dishes on mediums made up essentially as suggested by Vedder; that is, a meat infusion, soluble starch agar (3 per cent. agar) enriched with hemolized rabbit's blood. While it would be possible to use broth cultures for the growth of the organisms, we rather believe that a better immunizing product is obtained on agar. The growth is scraped from the smooth, firm surface by means of a small rubber squeegee, and transferred to a small Petri dish. The bacterial mass or paste is next dried at 53 C. in an oven in which a current of sterile dry air passes over the opened dishes; the drying seldom requires more than forty-five minutes, depending, however, on the thickness to which the bacterial mass has been spread. After thorough drying, the bacteria remain in the form of fine, glistening, brittle scales, which are readily removed by any sharp instrument. The dry weight of the organism per thousand million being known (a large number of these determinations are at present being made by Hersfeld in this laboratory), the bacteria are weighed under sterile precautions and ground in a ball mill for at least twenty-four hours. We add a few cubic centimeters of chloroform-ether to the grinding mass at the beginning of the process to insure the final killing of any organism still viable at that time.

A second method that we have used in some preparations has been to grow the organisms in Kolle flasks, wash off the growth with a small amount of distilled water, freeze the latter, and dry the frozen bacterial mass in vacuo. Both methods give excellent results, although for the production of large quantities of vaccine the first method described seems more expedient.

After thorough grinding, the admixture of the lipoids and oils is made as follows: Sterile anhydrous lanolin in an amount sufficient for the percentage desired in the final mixture (we have employed 10 per cent.) is gently warmed, and one-half volume of oil (olive oil or oil of sweet almonds) added to the lanolin, the whole being poured into the ball mill.[3] The viscid mass is mixed for another six or eight hours, at the end of which time increasing amounts of oil are added at intervals until the volume has been brought to the quantity desired.

The choice of oils used in the preparation is rather limited. The mineral oils were first tried by the French observers, but were evidently soon discarded in favor of vegetable oils, such as olive, sweet almond and poppy. The oils used must be nonirritating, of slow absorbability, must not be too viscid for injection, should withstand complete sterilization without alteration, and must be available in the market in reasonable quantities. Mills' work[3] gives considerable information concerning the use of a variety of oils for subcutaneous injection.

We have heated some of our preparations to 53 C. for thirty minutes, although this step is probably not necessary.

After bottling, sterility is tested by means of bouillon shake cultures, and animal inoculations are made for each run of vaccine.

THE TYPHOID-PARATYPHOID A AND B VACCINE

Experiments with a lipovaccine of typhoid-paratyphoid A and B bacteria prepared in this manner and containing 7,500 million organisms to the cubic centimeter have led to the following results:

(*a*) The agglutination titer of rabbits immunized with a single dose of lipovaccine compares favorably with that obtained with the three doses of aqueous vaccine.

(*b*) Protective experiments made in guinea-pigs indicate a degree of protection equal to that obtained with an aqueous vaccine. Table 1 presents a typical

TABLE 1.—PROTECTIVE EXPERIMENTS IN GUINEA-PIGS

Controls			Immunized Animals		
Weight, Gm.	Loops of Bacteria	Result	Weight, Gm.	Loops of Bacteria	Result
510	4	+ 12/15/17	480	4	+ 12/17/17
500	5	+ 12/16/17	580	5	Remained well
500	6	+ 12/14/17	480	6	Remained well

protocol. Young guinea-pigs were injected with 1 c.c. of vaccine, Dec. 1, 1917. December 11, three were injected intraperitoneally with increasing doses of fresh cultures of typhoid organisms.

(*c*) The agglutination in human serum following a single inoculation is equal to or exceeds that obtained following the aqueous Army vaccine. In the chart the result of the composite agglutinin response in three groups of physicians of twelve each, who were inoculated with our preparation, with a French preparation and with the Army triple vaccine is shown.

It is rather interesting to note that the agglutinin response to paratyphoid B in the lipovaccine group lags far behind the others. Whether this is due to the greater dosage of this particular organism employed in the vaccine, or to some other factor, we do not know.

(*d*) The reaction, both local and general, following the injection of the vaccine is relatively mild, and of the original group of twenty-four men who received the oil vaccines, only one gave a temperature rise of more than 1 degree.

THE PNEUMOCOCCUS VACCINE

It is, of course, well known not only that well marked differences exist in the human mortality for

3. Mills, L. H.: The Utilization of Fats and Oils Given Subcutaneously, Arch. Int. Med., May, 1911, p. 694.

the different types of pneumococci, but also that the direct toxicity of the organisms varies. In a preliminary titration of the toxicity of the drier organisms injected into mice subcutaneously in salt solution, the results given in Table 2 were obtained.

TABLE 2.—TOXICITY OF PNEUMOCOCCUS VACCINE FOR MICE

Type I	Type II	Type III
20 mg. + 24 hours	20 mg. Remained alive	20 mg. + 2 days
10 mg. Remained alive	10 mg. Remained alive	10 mg. + 3 days
5 mg. Remained alive	5 mg. Remained alive	5 mg. + 3 days
2.5 mg. Remained alive	2.5 mg. Remained alive	2.5 mg. Remained well

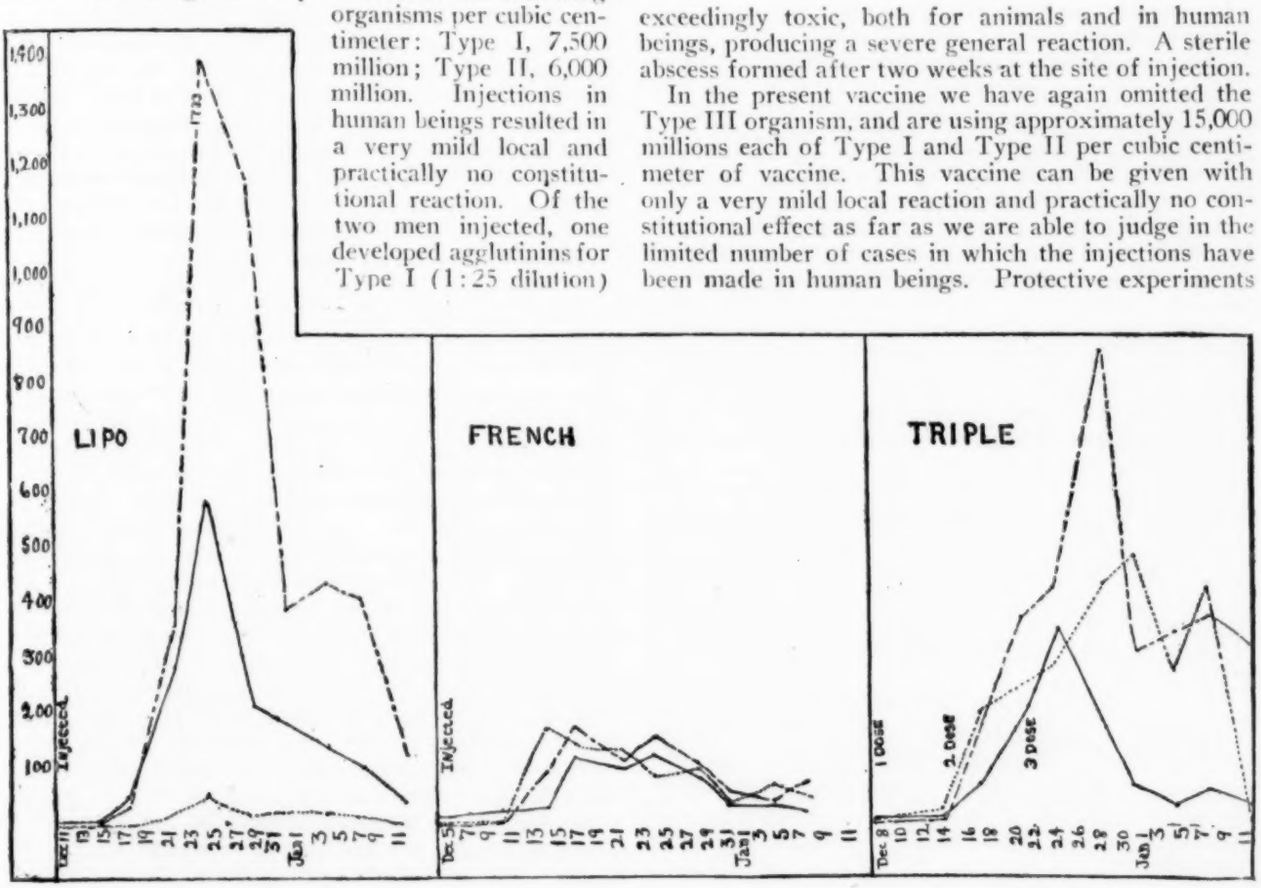
In our first vaccine we therefore omitted Type III, the vaccine being made up to contain the following organisms per cubic centimeter: Type I, 7,500 million; Type II, 6,000 million. Injections in human beings resulted in a very mild local and practically no constitutional reaction. Of the two men injected, one developed agglutinins for Type I (1:25 dilution) avirulent strain of Type I, with the result given in Table 4.

The second preparation was made up containing approximately 15,000 million per cubic centimeter of Types I, II and III. This vaccine, however, was exceedingly toxic, both for animals and in human beings, producing a severe general reaction. A sterile abscess formed after two weeks at the site of injection.

TABLE 3.—PROTECTION EXPERIMENTS IN MICE WITH FIRST VACCINE

Controls		Vaccinated	
		0.25 C.c.	0.5 C.c.
1. 1/500 c.c.	+ 12/12/17	1. Remained alive	1. + 12/12/17
2. 1/1,000 c.c.	+ 12/12/17	2. + 12/12/17	2. + 12/12/17
3. 1/5,000 c.c.	+ 12/12/17	3. + 12/12/17	3. + 12/12/17
4. 1/10,000 c.c.	+ 12/12/17	4. + 12/12/17	4. + 12/12/17
5. 1/50,000 c.c.	+ 12/11/17	5. + 12/12/17	5. + 12/13/17
6. 1/100,000 c.c.	+ 12/12/17	6. Remained well	6. Remained well

In the present vaccine we have again omitted the Type III organism, and are using approximately 15,000 millions each of Type I and Type II per cubic centimeter of vaccine. This vaccine can be given with only a very mild local reaction and practically no constitutional effect as far as we are able to judge in the limited number of cases in which the injections have been made in human beings. Protective experiments



Comparative agglutination curves of our triple typhoid vaccine in oil, our triple typhoid vaccine in saline solution, and the French triple typhoid vaccine in oil. The agglutinations are in agglutinin units; to get the dilution, it is necessary to multiply by the factor set down for each organism. Composite, twelve men in each group. Continuous line, Paratyphoid A; dotted line, Paratyphoid B; Factor, T=8.0; A=4.0; B=4.0.

still existent after six weeks; for Type II (1:20 dilution) these remained for two weeks.

A second man developed agglutinins for Type I (1:15 dilution), and for Type II (1:40 dilution); but after six weeks no agglutinins were present.

Two rabbits were injected at the same time; the serum of one, unfortunately was lost. The other rabbit developed agglutinin for Types I and II (1:10 and 1:20 dilutions, respectively).

Protection experiments in mice with this vaccine resulted as follows: Six mice were injected with 0.5 c.c. and six with 0.25 c.c., Nov. 24, 1917; December 10, they were injected with a twenty-four hour broth culture of Type II with the result given in Table 3.

A second series of mice was vaccinated, Dec. 5, 1917 (0.25 c.c.), and injected, Jan. 5, 1918, with a relatively

TABLE 4.—RESULTS WITH AVIRULENT STRAIN OF TYPE I

Control		Vaccinated mice
1. 1/1,000	+ 1/6/18	1. + 1/7/18
2. 1/5,000	+ 1/7/18	2. Remained well
3. 1/10,000	+ 1/7/18	3. + 1/7/18
4. 1/50,000	Remained well	4. Remained well

indicate very definite protective value for pneumococcus vaccination properly carried out.

MENINGOCOCCUS VACCINE

In the preparation of meningococcus vaccine we have used Strains 1, 10, 30 and 60 (Rockefeller), of

which we have incorporated approximately 10,000 million of each strain per cubic centimeter. The meningococcus shows considerable variation in weight, corresponding to its fluctuation in morphology; Strain 1, however, weighs approximately 0.1 mg. per thousand million with considerable consistency. We have, therefore, made up the vaccine with 1 gm. of each of the dried organism per liter.

We have injected a series of rabbits (twelve) with this vaccine, using a dose of 1 c.c., and in a series an additional dosage of 1.5 c.c. three days following the first dose. With two exceptions, all show decided agglutination for Strain 10; several for Strain 30; the majority for Strain 60, some in a dilution of 1:200. Only one of this series showed agglutination for Strain 1 (1.25 dilution).

The men injected have been divided into three groups:

One group of twenty-five received a 1 c.c. dose of this vaccine, with very mild local and no constitutional effect. Of these only two have so far given any agglutinin response (three weeks).

A second group of twenty-five received 1 c.c., Jan. 12, 1918, and a second dose, January 15. Following the second dose, two men complained of some constitutional effects.

In this group no agglutinins have developed by January 21 for Strain 1; all but five have developed agglutinins for Strain 10 (some as high as 1:800 dilution). Five have developed agglutinins for Strain 30 in the lower dilutions (1:12 and 1:25). None have responded to Strain 60.

A third group of five men received 1 c.c. of a vaccine made up twice as strong as the previous vaccine (2 gm. of each type to the liter), January 18. This vaccine was followed after twenty-four hours by a moderate general reaction. Of this group, one responded in four days in the lower dilutions to Strain 1; three to Strain 10, and one to Strain 30; but none to Strain 60.

THE DYSENTERY VACCINE

Vaccination against bacillary dysentery has heretofore encountered serious difficulties because of the pronounced toxicity of all aqueous preparations employed. The attenuation of the toxicity of dysentery vaccine when prepared in oil is illustrated in the following experiment:

Five thousand million Shiga bacilli (aqueous vaccine) per cubic centimeter injected into a rabbit was followed by death in two days.

The same dose, prepared as an oil vaccine, was well tolerated by a rabbit, although no agglutinin production was to be observed.

For preliminary experiments we have prepared a vaccine containing 2,000 million each of the Shiga, Flexner and Y types. Injection into rabbits has resulted in the following agglutinin curve:

One rabbit received 1 c.c., Dec. 17, 1917, and another 2 c.c., Dec. 17, 1917. Both have responded with agglutinins to all three strains, the rabbit receiving the larger dose agglutinating in the following dilution: Shiga, 1:100; Flexner, 1:400; Y, 1:1,600.

Two human beings were injected, one receiving 0.25 c.c., the other 1 c.c. In neither case were the reactions at all marked either locally or systemically. There was no agglutinin response in the first case; the second man has responded in the following dilutions: Flexner, 1:200; Y, 1:37; Shiga, 1:25.

Because of the demands of other work, we have not carried these experiments farther for the time being.

METHODS OF PRESERVATION

In the preparation of aqueous vaccines, certain of the coal tar preservatives—tricresol, etc.—are commonly added as preservatives. Unfortunately, as Koch showed in some of his early work, practically all of the common disinfectants and preservatives are lipotropic, and in the presence of lipoids and fats are without effect on bacteria. Both vegetative and spore forms of tetanus, and Welch bacilli seeded into oils and treated at room and incubator temperature with large percentages of ether and chloroform, remain viable (Dr. Pritchett of the Rockefeller Institute very kindly carried out these experiments for us). Iodin has so far given us the best results, and has the advantage that it soon combines with the unsaturated oils, and is thereby rendered inert after it has served its purpose. Whether iodin will alter the antigenic property of the vaccine is still to be determined. The attenuation of toxins by means of iodin is, of course, a well recognized procedure. At present no antiseptic of any kind is added to the vaccine as we prepare it.

METHOD OF ADMINISTRATION

Because of the tendency of the oil of the vaccine to make the glassware and needles slippery, the injection of the lipovaccine seems at first to be more tedious and disagreeable to one who has worked with the aqueous vaccine for any length of time. Certain precautions must be taken, too, that are less essential in the manipulation of the aqueous vaccine. The skin should be sterilized with iodin. The vaccine should be warmed slightly (37 C. is sufficient) to facilitate the ready flow of the oil. It is well to use a large bore needle (if the point is kept properly sharpened the pain of injection is not increased thereby), and to draw up the oil into the barrel with the needle detached. Absolute care must be observed to prevent an intravenous injection. The large size of the injecting needle leaves a puncture from which the oil has a tendency to run back; to prevent this we press a small iodin swab firmly against the puncture until the flow ceases. This prevents, too, the occurrence of superficial puncture infections, which are apt to follow if the needle puncture is permitted to remain open and the clothing pulled down over it.

CONCLUSIONS

While we regard our work as purely preliminary, we have gained the impression that the lipovaccine offers a number of advantages over the aqueous preparation. The production of the vaccine is, of course, more laborious and expensive, and a number of technical problems remain to be studied in connection with it, together with detailed investigations of the comparative antigenic value. Apart from the typhoid-paratyphoid A and B preparation, the pneumococcus and meningococcus vaccines have been of interest to us because of the apparently ready response in agglutinins of both animals and man to a single injection. Whether such a response properly portrays the protective value of the vaccine is, of course, not to be determined in so short a period of time as has been available to us. Protection tests in animals vaccinated with the triple typhoid lipovaccine have indicated the development of a considerable degree of resistance, and sim-

ilar experiments carried out in mice following pneumococcus vaccination gave some evidence of protection. The latter experiments, together with those under way with meningococcus vaccine, are, however, not sufficiently advanced to permit us to draw definite conclusions.

TYPE DETERMINATION OF PNEUMOCOCCUS INFECTION

AS PRACTICED IN THE FIELD WITH AVERY'S NEW CULTURAL METHOD

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The clearly demonstrated beneficial results in the use of Type I serum for the treatment of cases of lobar pneumonia infected with Type I pneumococcus has led to the introduction in the hospitals of the United States Army of type determination as a part of the routine treatment of cases of lobar and bronchopneumonia. The shortage of mice, however, has been so great that in many places it has been absolutely impossible to obtain these animals for laboratory use. It is indeed fortunate, therefore, that the cultural method recently devised by Avery, the so-called "artificial mouse," has been placed at the disposal of laboratory workers in the Army base hospitals. I have used the method described by him in one of the base hospitals, and it has given complete satisfaction, as far as practical results are concerned. Since laboratory equipment in these institutions is necessarily somewhat curtailed, and since it is essentially the same in all such laboratories, I take this occasion to describe in some detail the routine that I have worked out, and I do so with the hope that it may be of use to others. For reasons of economy, it has been found necessary, first, to use as little apparatus as practicable, and secondly, when working with the sputum itself or with mediums containing pneumococci, to use exceedingly cheap apparatus which may be immediately disposed of by burning, thereby saving time and trouble in subsequent cleaning and sterilization. The method here outlined is rather rough, but it is to be recommended on account of its simplicity, reliability and rapidity of execution.

APPARATUS

The following is a list of articles required in the carrying out of group determination:

Beef infusion broth. (One thousand c.c. should be enough for the determination of 250 sputums.)

Twenty per cent. sterile glucose solution. (This can be made by autoclaving 50 c.c. of distilled water in a 4 ounce bottle with a rubber stopper, and subsequently adding to this 10 gm. chemically pure glucose. This is then sterilized by boiling.)

Sterile defibrinated blood. (This can best be obtained by autoclaving an ordinary 2 or 4 ounce bottle with a rubber stopper, in which have been placed several glass beads. Twenty or 30 c.c. of blood may then be drawn from the arm vein of a patient whose blood is known to be normal, a sterile glass syringe, as for the Wassermann technic, being used. This is immediately transferred to the sterile bottle, which is then shaken to defibrinate the blood.)

(These three ingredients of the culture mediums may be kept separately in the ice-box, and portions drawn off, as needed, with a sterile pipet. There is no great danger of contamination; but if this method is followed, no larger amounts of blood and glucose solution should be kept in each bottle, and the sterile beef infusion broth should be in 250 or 300 c.c. lots. The other method that may be followed is that of keeping the culture medium in centrifuge tubes with the various ingredients already mixed and in the proper proportions.)

Two 4 ounce bottles for glucose solution and blood.

From twelve to twenty-four glass beads.

Five or more 10 c.c. graduated pipets, which may be rolled up in a towel and sterilized by dry heat.

Twelve or more small nongraduated pipets about 8 inches long, which may easily be made from ordinary glass tubing of about 7 mm. diameter.

Twenty-four or more centrifuge tubes or heavy glass test tubes of similar size, suitable for using in a centrifuge.

Agglutination tubes, from four to six dozen or more. (The small, thick glass tubes, 3 inches long and three-eighths inch in diameter, usually on hand in the base hospital laboratories, are entirely satisfactory for this purpose.)

Porcelain dish for concentrating urine.

Four deep glasses for decolorizing Gram's stain, etc. (If regular glasses are not on hand, nurses' medicine glasses are very satisfactory.)

Gram's stain.

Hiss' capsule stain.

Ziehl-Neelsen stain.

Microscope with oil immersion lens.

Glass microscope slides.

Incubator (37 C.).

Dishes for holding disinfecting solution, preferably cresol. (One should be about the size of a 1 quart Mason jar, and is used as a receptacle for contaminated pipets. A Mason jar will do, or another article that is always on hand is an empty tin can for alcohol, 2 pound size, the cover of which may be removed with a can opener or by merely melting the solder by inverting on a hot stove lid. Tin wash basins are satisfactory for discarded centrifuge and agglutination tubes. The bottom half of unused white enamel cuspidors is of convenient size and shape. The work done at this base hospital was in a temporary laboratory located in the pneumonia ward, and it was decided that the cuspidors regularly allotted to the ward were thus being put to infinitely greater advantage than had they been standing on the floor of the ward.)

Alcohol lamp.

Tripod for porcelain dish.

Platinum loop.

Immune serums, Types I, II and III, for diagnostic purposes.

Six medicine droppers for staining.

Two rubber nipples for use on nongraduated pipets.

Cresol solution.

Test tube racks.

METHOD OF PROCEDURE

As soon as the patient is admitted to the ward, a fresh sputum specimen is sent to the laboratory, where it is stained by Gram's stain and by Hiss' capsule stain. Frequently several sputums are to be examined at once, and the culture medium, if not already stored in the centrifuge tubes, is now made up from the three bottles of broth, blood and glucose. With a sterile 10 c.c. pipet, 10 c.c. of broth are drawn up and distributed equally into three centrifuge tubes. Provided the pipet is not contaminated by touching anything, this process can be repeated with the same pipet until the desired number of tubes have been prepared. If sterile pipets are scarce, the same pipet may now be used to draw up glucose solution, and approximately 0.2 c.c. is distributed to each of the centrifuge tubes. Blood is now distributed in the same manner and in the same amount as the glucose solution. This preparation of medium takes only a few minutes. It must be emphasized, however, that whenever not in use, the ingredients *must* be kept in the ice-box.

A portion of the sputum that has been brought to the laboratory in a nonsterile pasteboard sputum cup is stained by Gram's stain, and if found to contain large numbers of pneumococci, it is washed through three washings of sterile physiologic sodium chlorid solution and then transferred to the culture medium in the centrifuge tube. We have found it convenient to cut strips of thin cardboard about 10 cm. long, 2 cm. wide at one end, and 0.5 cm. at the other, which are used to pick up a portion of the sputum the size of a kidney bean and place it in the tube. Next, an important procedure, is to loosen the sputum from the wall of the centrifuge tube and make sure that it is floating free in the fluid. Otherwise, when later centrifugalizing is attempted, the mucus may adhere to the side of the glass and be thrown down with great difficulty. The sputum is thus loosened by stirring with a slender wooden applicator about 5 inches long, such as is commonly used in swabbing throats. This is much easier than stirring with a wire, which must subsequently be sterilized over a small alcohol flame. The culture is now placed in an incubator for from five to six hours at 37 C. A water bath has the advantage that the tubes heat up more rapidly, and such may easily be improvised merely by the placing of a pan of water inside the incubator.

The sputum cup, cardboard spatulas and wooden applicators are now easily disposed of by being thrown into the fire. When one is running from six to ten or more sputums at one time, this is a great saving in time and materials.

Satisfactory test tube racks may be made, if necessary, out of ordinary 2 by 4 inch boards of about 1 foot length, into one broad surface of which two or three rows of holes of desired diameter have been bored to a depth of about 1 inch.

After proper incubation, smears are made from the culture and stained with Gram's stain and with Hiss' capsule stain. The growth of pneumococcus is as a rule very abundant at this time, as shown by microscopic examination. Other organisms for which the medium is not suitable have not multiplied to any remarkable extent. The size and shape of the pneumococcus is here noted in the records as well as the extent of capsule development. If the growth is found not to be abundant at the end of six hours, the incubation may be prolonged. This, however, is rarely necessary.

After microscopic examination, the centrifuge tubes are centrifuged at low speed (high speed on the ordinary centrifuge) for from two to five minutes or more, after which the supernatant fluid from each tube is pipetted with the nongraduated pipet and a rubber nipple, into each of the agglutination tubes in 0.5 c.c. portions. To the first tube is added an equal amount of Type I serum, to the second Type II serum, and to the third, if on hand, Type III serum. Each tube should be shaken after the serum is added, and then they are all incubated for two hours. Usually a positive reaction occurs within one hour, and consists in the settling out of a flocculent precipitate, leaving a clearer supernatant fluid than in the case of the other tubes from the same sputum, and on agitation of the tube, the rather large floccules become evenly distributed throughout the fluid. If no such precipitation or agglutination occurs in any of the three tubes, the assumption is that the infection is with a Type IV organism.

If sterile ox-bile can be obtained, the type determination may be hastened by adding 1 c.c. of clear bile to the culture after five or six hours' incubation in the water bath, and incubating for twenty minutes, a process which, as Avery has shown, dissolves the pneumococcus cellular substance, with the consequent liberation of a much greater concentration of soluble pneumococcus substance available for the precipitin reaction. After centrifugalization, then, equal amounts of the supernatant fluid and of immune serum will show and almost immediate positive reaction in case of Type I, II or III infection, and subsequent incubation is unnecessary.

Although it is highly desirable to work with sterile apparatus, sterile centrifuge tubes, agglutination tubes and pipets, yet in the laboratory of a base hospital, where the work is extremely heavy and the facilities are at times rather limited, it is frequently more practical to use when possible articles that are thoroughly clean but not necessarily sterile, except through the process of boiling. The test tubes and centrifuge tubes may be nonsterile. At least four 10 c.c. pipets must be sterile—one for the preparation of culture medium in centrifuge tubes and one for each of the three immune serums. The nongraduated pipets for transferring culture from centrifuge tubes to agglutination tubes do not need to be sterile, and if they are very scarce one may be used for all sputum specimens, care being taken to rinse out the pipet several times in clean water after every transferal of broth culture. Organisms might be transferred in this manner, but not enough of the culture medium could be transferred to interfere with the agglutination or precipitin reaction; any transferred organisms would not in two hours have sufficient time to grow to an extent great enough to interfere with the reaction. This is demonstrated by the fact that when we have obtained a Type I or a Type II organism while running ten or more sputums at once, there was not the slightest suggestion of Type I or Type II, as the case may be, in the adjoining agglutination tubes. However, since it is necessary to sterilize a portion of the pipets, it is no additional trouble to sterilize by dry heat, at the same time, all of those used.

COMMENT

Certain points require especial emphasis.

First and foremost, the sputum specimen must be sputum raised from the chest and not contaminated by saliva. Avery reports that in the use of his new method, in only three cases were the results at variance with those obtained from mouse inoculation. In these three instances the mouse culture showed Type I infection to be present, whereas the artificial medium showed absence of Types I, II or III organisms. On repetition with carefully washed sputum which was thoroughly broken up in a mortar, the results with the artificial medium were found to correspond with those of the mouse method. As Avery has pointed out, in the peritoneal cavity of a mouse the more virulent organism will outgrow the less highly infectious Type IV organism, but in broth culture the two types will grow with equal rapidity, and the one that is present in the greatest concentration to begin with will be the predominating organism after five or six hours' cultivation.

It is frequently difficult to find ward attendants who can readily comprehend the importance of obtaining uncontaminated sputum, and it may be advisable

to instruct one nurse or ward master in each ward, and to hold her or him responsible for proper collection. If a pneumonia patient finds it impossible to raise sputum while lying on his back, he can often be made to cough while lying on his unaffected side, and a fit of coughing once started usually terminates in the expulsion of one mass of sputum entirely sufficient in amount for the laboratory examination.

The laboratory worker should be instructed never to accept a sputum specimen that is contaminated with saliva.

In order to free the collected sputum from contaminating mouth organisms, especially from the Type IV pneumococcus, which is so frequently present in the normal saliva, Avery recommends washing the specimen in two or three changes of sterile saline solution and subsequently grinding it in a sterile mortar to liberate the infecting organism from the interior of the pellet of sputum, previous to incubation. We have insisted on this washing in sterile salt solution; but since sterile mortars are not numerous in the equipment of a base hospital laboratory, we have replaced the latter procedure by thorough agitation of the sputum in the culture medium, with wooden applicators as previously described. By this method the sputum may be quite efficiently broken up.

It must be emphasized that a report of Type IV pneumococcus infection is a negative report. It is analogous to a report of "nothing found." In every Type IV pneumococcus report there is the possibility of salivary contamination, and it is a good rule to follow that, in Type IV infection, one should continue the search for the infecting organism. Every case of Type IV pneumonia should therefore have at least two type determinations, and in each case with sputum collected with the utmost care.

As regards the dilution of serums used in the agglutination or precipitin reactions, it may first be stated that Types I, II and III serums may be used undiluted. It is, in fact, advisable to use Type I serum undiluted, because for therapeutic purposes it is all important that no false negatives be obtained from the use of too dilute serum. Such instances have been known to occur, and are explained by the fact that the particular batch of serum used was unusually low in agglutinins. In using undiluted Type I serum there is no danger of obtaining a false positive reaction from action on a Type II, III or IV organism. The same statement holds true for the other two types of serum.

In order, however, to economize in the use of serum, it is well to dilute when possible. It is considered safe to dilute the Type I and Type II serums 1 : 10, and the Type III serum 1 : 5 before using. No greater quantities of diluted serum than enough for three days should be made up at one time on account of the danger of contamination. Dilution should be made in sterile physiologic sodium chlorid solution, and the serum must be kept cold.

In the grouping as it is determined in the base hospitals, it is well to set up three tubes of pneumococcus culture in agglutination tubes, into the first of which is placed Type I serum, undiluted or diluted 1 : 10, as preferred, into the second Type II serum, undiluted, and into the third Type III serum, diluted 1 : 5. By using Type II undiluted, the atypical Type II organisms will also be recognized, and these may be distinguished from straight Type II organisms by subsequent incubation of a fresh sputum culture with Type II serum diluted 1 : 10. If the reaction is positive with the diluted serum, the infection is with the straight Type II organism. It has been found to be a saving of both time and serum thus to resort to diluted Type II serum only when the reaction was positive with the undiluted serum.

If the test tube stands, made from a block of 2 by 4 inch wood, as previously described, have three rows of holes drilled into them, the cross rows of three holes each will be such that each cross row serves for one patient's sputum, with serums of Types I, II and III in the row.

Only one additional point requires mention. If the infection should be with a streptococcus instead of with a pneumococcus, the streptococcus will be found in the smear from the six-hour culture. Here also it would be most important to obtain uncontaminated sputum. Otherwise the culture might show a large number of mouth pneumococci. If the infection is with a hemolytic streptococcus, hemolysis of the red cells in the culture medium will occur. This diffuse reddening of the fluid which is not otherwise the rule is of a diagnostic value. Occasionally in a pneumococcic infection the pneumococci will grow out in chains of diplococci, in the culture, and to a cursory examination it would appear as a streptococcus infection.

If possible, the determination of pneumococcus type by this rapid method should be controlled by agglutination reactions on pure cultures of the organism. Pure cultures may be made from smears of the six-hour blood-glucose-broth culture on glucose-blood-agar plates. If this is done, differentiation of the Type II organism from the atypical Type II may be accomplished with the pure culture, thereby eliminating the necessity of making a second sputum culture in cases showing agglutination or precipitation with undiluted Type II serum.

A blood culture should be made in every pneumonia case soon after entrance of the patient to the hospital, and if a pneumococcus growth be obtained, agglutination tests, and if time permits, further identification tests should be performed on the pure culture.

Precipitin tests on an admission specimen of the patient's urine, both unconcentrated and concentrated, may also be performed in the manner described by Blake.

Patent Medicines—Why?—At a time when additional revenue is imperatively needed, why do patent medicines escape a fair share of the burden? In the estimated returns from the new war tax bill these are credited with a contribution of only $3,000,000, while cigars, cigarettes and tobacco are expected to bring in $55,000,000, fermented liquors $45,000,000, soft drinks $14,000,000, and wines $10,000,000. It is not a sufficient answer to say that these other things are luxuries—that is only partially true, at best. Nor can it be argued, on the other hand, that these patent medicines are necessities; that again is only partially true. For, although some of them serve a useful purpose, by far the greater number are injurious. They either do not cure the complaints for which they are recommended or they bring on others. It is notorious that some widely sold compounds contain a high percentage of alcohol, and that their "tonic" effect is the result of the alcohol in them, not of the other ingredients. Their large sale in "dry" territory is proof enough that they are largely used as substitutes for undisguised spirits, and often do more harm. The world would be much better off if most of them were taxed out of existence.—*Philadelphia Ledger.*

PERSONALITY IN PARESIS

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American psychiatrists, led by Meyer, Hoch, Jelliffe, Kirby and others, have revived interest in the study of the development of various mental disorders, particularly dementia praecox, by definitely showing the great part which the personality of the individual plays in the development, progress and nature of a given psychosis. The major part of this work has been done in dementia praecox and manic depressive insanity, and conditions allied to these two abnormal mental reactions.

Recently I[1] reported 144 cases of mental disease selected from a great number of cases which were observed at the Vanderbilt Clinic and were studied particularly with the idea of bringing out peculiarities of make-up. The results have confirmed the observations long ago made by the writers mentioned above. Further, however, it seemed interesting to note that in twenty-five cases of undoubted general paresis, those cases which were distinctly psychotic developed in persons with peculiar personalities. In the report I said:

> Of these twenty-five cases of general paresis, it will be immediately noticed that fourteen have been placed in the chart under the classification "efficient." By this term we mean to indicate that before the onset these patients were efficient, normal, average individuals without unusual traits which could be learned. It is peculiar that in nearly all of these fourteen cases the psychoses are limited to memory defects and some mental deterioration, both of which are expressions of destruction of brain tissue by the disease process with hardly any irritative mental symptoms. These are the cases also which appear to be general paresis with physical signs dominating the picture, the mental signs being greatly subordinate. On the other hand, an analysis of the other eleven cases shows that the contrary is true. These are the euphoric, bad tempered, explosively emotional, highly excitable paretics who are usually committed as insane.

A large number of paretics will run a fairly even course from onset to dissolution without at any time coming within the average lay person's concept of insanity. These persons appear to be suffering mainly from the definite physical results of the destructive disease process in the brain tissues, meninges and blood vessels. On the other hand, a large group of paretics, from the very inception of their disease, are peculiar, irritable, excitable, euphoric, inefficient, boisterous, lewd, and subject to delusions or hallucinations. Therefore, according to the nonmedical conception, these patients are affected with the psychosis, paresis. In the twenty-five cases reported, there were fourteen of the first group and eleven of the second. According to this study, the type of psychosis in the eleven appeared to be distinctly influenced by the personality of the patient before the onset of the organic disease. The various types of make-up in these eleven persons seemed to determine the nature of the psychotic manifestations. For years, as long as they or their relatives could remember, these patients had been practically always of a distinctly irritable, excitable disposition, showing various degrees of inefficiency as workers. One was considered a neurasthenic prior to the onset of his illness. One, besides being of a nervous, irritable, inefficient make-up, had frequent periods of depression and was immoral. Four of the eleven patients had been alcoholic for years besides being inefficient workers, and two, besides possessing the neurotic temperament, were subject to alternating periods of depression and excitement. One neurotic was a morphin addict. Another had suffered from diabetes, was dull and drowsy and easily fatigued, and had been sexually impotent for many years before the onset. These eleven, who were either simply neurotic, or neurasthenic, or alcoholic and inefficient, were the only ones of the twenty-five patients who could really be said to have a psychosis plus the paresis. They were also the euphoric, boastful, indifferent, confused, incoherent, excitable persons who showed gross defects in behavior, judgment, memory and intelligence, and who make up the class of paretics that are early committed to hospitals for the insane.

I have no desire to formulate the theory that paresis of this type occurs only in persons who possess the characteristics which we are in the habit of classifying as neurotic, neurasthenic or inefficient. In the following twelve cases, I shall endeavor to prove with clearness and detail that the personality, or so-called make-up of the patient who is infected with the specific toxin of syphilis and develops the disease known as general paresis, will determine whether he is to have the gradually progressive disease characterized chiefly by physical signs, or the more rapidly progressive disease characterized chiefly by mental signs and being essentially a psychosis. For many years, statements have been made to the effect that paresis occurs only in peculiar, highly energetic, mentally active persons, and that it is uncommon to find this psychosis in dull, less talented persons. That this is not true, any one who sees a great number of these patients will be prepared to confirm. On the other hand, many clinicians have been impressed with the fact that paresis develops only, or at least much more often, in individuals peculiarly predisposed.

Without attempting a psychologic analysis of personality or make-up, as it is usually understood, I wish to define clearly what I understand by these terms. For me, personality is that intangible, because complicated, something which stamps the individual as a unit and makes him different from a great many of his fellows. It consists primarily of the nervous system (and secondarily of all the organs of the body) with its capabilities for development predetermined by inheritance, modified secondarily by education and experience as the result of contact with the environment. For normal persons with healthy organs, under the influence of an average environment, there is possible but very little difference in the personality. Persons with nervous systems not weakened hereditarily and not disturbed by abnormal influences in the environment form the great mass of the people who, we say, have the normal, average make-up. Those persons, however, who are handicapped by the possession of neurotic constitutions (for instance, according to the conception of Adler) or those who, possessing a normal heredity, are subjected to stressful or other harmful influences in an environment poorly adapted to successful development, develop the personalities which we recognize as peculiar, shut-in or seclusive, neurotic, psychasthenic, etc. In paresis, we are attempting to determine whether parenchymatous syphilitic infection of the nervous system is influenced in the production of the mental symptoms by indi-

1. Osnato, Michael: New York Med. Jour., to be published.

vidualistic, particular traits of the patient. There is no more reason for us to lose sight of the patient in considering general paresis than for us to lose sight of him in studying dementia praecox, or manic depressive insanity, or the alcoholic psychoses.

It has for many years puzzled psychiatrists and other clinicians why it is that, of the great number of persons who are infected with syphilis, only a few, probably less than 3 per cent. of the total number of syphilitics, eventually end as paretics. If we, therefore, postulate in these patients the presence of a defect in the nervous system, particularly the brain, which exists either as a hereditary or an acquired weakness, then Adler's conception of organic inferiority helps to explain the problem. Adler conceives that the neurotic is somatically inferior, also that this inferiority affects more than one organ and that, as an overcompensation medium, the central nervous system is always involved. In other words, if we can prove that, before the onset of his psychosis, the psychotic paretic is practically always a neurotic, then we can go further and say that paresis has developed in him because the central nervous system is an inferior organ and the inferiority serves to determine the location of the characteristic destructive process caused by his syphilitic infection.

The following twelve cases have been selected from my private practice, because I was able to obtain data in sufficient detail to make a study of this kind possible only from persons who could be constantly and intimately under observation and whose relatives were readily accessible for information about the previous characteristics of the patients studied.

REPORT OF CASES

CASE 1.—The most instructive of these cases is that of a native Italian woman, G. E., aged 33, married, whom I saw for the first time, Jan. 20, 1917. The most important point in the family history is that two first cousins of this patient died insane in asylums in Italy. One of these cousins had been insane for seventeen years; the other was insane for only a few months and died from his trouble. The patient was married when she was 22 years of age. The marriage was unhappy and not of her choice, being arranged by her parents. The mother is an obstinate Italian woman of poor mental endowments who married a rather brilliant musician. This marriage also had been unhappy and ended in desertion of the patient's mother by the father, who has not been heard of for a number of years. The dissatisfaction felt by the patient on account of her married state was increased by the fact that the pair had no children. The husband was never a very good provider, and was rather dull, uninteresting and inefficient as a worker. Because of her husband's inability to provide properly, the patient, who is good looking, had been forced to work as a seamstress. She was always sensitive when her married relationships were mentioned, was inclined to be moody, would not speak for days, was seclusive, and was more often depressed than in any other mood. Her relatives have told me that she often appeared to be dreaming or thinking about something. She was a very efficient worker but distinctly not a normal personality. About Jan. 1, 1917, shortly after her sister had been operated on, she awoke suddenly in the middle of the night and proposed to the sister that they both run away to Italy, leaving her husband behind. She was quieted with difficulty and remained fairly well for a few days, when she again had an episode of excitement while purchasing some groceries in the store of a friend. This friend had offered her a cup of coffee, which she refused with great vehemence, accusing her friend and the friend's husband of attempting to kill her by putting poison in her coffee. She came home and got her husband to go back to the store with her, and accused the pair so loudly that she created a scene and was calmed with great difficulty. A week later while attending a social affair at her aunt's home, she suddenly threw the assemblage into an uproar by accusing her aunt of having put poison in the food which she, as well as the other invited guests, had eaten. She was brought home much excited, yelling that a lot of men were coming to the door and knocking at it with knives in their hands and demanding that she submit to their caresses. She said that these men spoke to her threateningly saying, "Kiss me or I will kill you." She stated that the friends who, she said, had originally attempted to poison her were sending these men with knives in their hands after her, and that these people followed her in the streets taunting her and calling her bad names. They also told abominable lies about her, saying that she was not married and that she had committed gross sexual sins. She was finally taken to the Kings County Hospital, January 15, and was sent from that institution with a diagnosis of dementia praecox, paranoid form, to the Kings Park State Hospital, where I saw her, Jan. 20, 1917. At this time she was so much disturbed that it was impossible to examine her, but the hospital physicians were sure that the diagnosis made at the first institution was undoubtedly wrong and that the patient was suffering from manic depressive insanity. A lumbar puncture was suggested at this time together with a blood Wassermann test. I saw the patient again, Feb. 1, 1917. At this time she was almost mute and inaccessible. When pressed hard for an answer she said, "I want to see Andrew and my mother and my sister." Her husband was not mentioned at all. She insisted on being called by her maiden name, she cried easily, and she did not appear to be reacting to hallucinations or delusions. She was very much annoyed, and insisted that she was not insane. The diagnosis at the Kings Park State Hospital at this time was manic depressive insanity, but a perusal of the serologic report made me suspicious that we had to deal with something else, particularly after I had examined the patient physically. The Wassermann test in both the blood and the spinal fluid was negative, but the cell count was seven. The physical examination showed that the right pupil was larger than the left and that both pupils reacted very sluggishly to light, but well to accommodation. The patient showed a slight unsteadiness on standing with the eyes closed, and the left patellar tendon reflex was much more active than the right. Accordingly, another lumbar puncture was done, and a report from the Kings Park State Hospital showed that there were seventeen cells, that the butyric acid test was positive and that the spinal fluid showed a positive Wassermann test. But the blood was again negative. Quoting from the report which was sent me with the diagnosis from the Kings County Hospital of dementia praecox, we find that the case had been thus summarized: "The patient expressed a diffuse, paranoid, hallucinatory trend with auditory and visual hallucinations. Her paranoid ideas were referred to a local business man who is married and whom she accused of making improper suggestions to her." She is said to have been apprehensive, restless and assaultive, and she reacted to auditory hallucinations. Her make-up is said to have been somewhat seclusive. In other words, not only from the nature of the psychosis but also from the history of the shut-in personality, this patient appeared to be definitely affected with paranoid dementia praecox. There is no reason to believe that any fault should be laid at the door of the observers at the Kings County Hospital for this conception of the case. In view of the patient's previous typical, seclusive make-up and the absolutely characteristic development of the psychosis, no one could be blamed for thinking this a case of dementia praecox. It is easy to see how large a part the personality of this patient led to the diagnosis made in this place of observation.

Later at the Kings Park State Hospital, other observers equally skilled and experienced in the care and treatment of cases of this kind decided that, because of the history of the depressions which preceded the onset of the psychosis and because of the sudden onset with great excitement, this was not a case of dementia praecox but rather a case of manic depressive insanity. Was not the personality distinctly in favor of this view? As a matter of fact, what the patient really had and still has (she is now on parole and is being treated with intravenous injections of salvarsan) is the organic nervous disease known as general paresis plus a

psychosis which, in one place, was called dementia praecox, and in another, manic depressive insanity. There is very little room for doubt that the make-up of the patient, as described above, determined the nature of her psychotic reactions, and that the syphilitic infection merely decided the location of the irritative and destructive processes in the brain, which were responsible for the physical signs that played so small a part in her disease.

Besides illustrating this point, the case is of interest in other ways, because it illustrates the existence of conjugal paresis. The shiftless, dull, inefficient husband, always mentally below par, was committed to the Kings Park State Hospital suffering from general paresis. I saw him on a number of occasions; but at no time before his commitment, or since, has he been the victim of delusional trends, hallucinatory episodes, euphoria, or alternating periods of either depression or excitement. He has deteriorated slowly but progressively, has presented all the usual signs of paresis, and is now grossly demented, incontinent and helpless. The onset in this individual must have been exceedingly insidious, because not until he became so extremely stupid as to be helpless was it considered that he might be ill. It seems that he emerged from his ordinary normal, dull, inefficient state into a gradually increasing dementia, progressively and without incident. This illustrates the type of paresis which I would call the physical, as against the psychotic type.

CASE 2.—A. L., a man, aged 29, married, was a brilliant musician who played for some of the best musical organizations in this country. His wife, a talented woman, had known him since he was a boy. He was always considered nervous, sensitive and timid, was inclined to be seclusive, and made very few friends. He was always restless and, outside of his musical ability, was wholly inefficient, depending on his wife to manage his affairs. His psychosis began suddenly about a year before he was first seen by me. He awoke one night exclaiming to his wife that he had seen a fearful vision in which a great number of soldiers were approaching him, threatening to do him harm. He said that streams of water seemed to be coming out of his body. He was very fearful and apprehensive, and feared the same death as his father. The latter, an officer in the Italian army, had died from a violent attack of insanity which was characterized by great excitement and lasted only several months, and which was said to have been due to syphilis of the brain. The patient had always had a horrible fear of insanity, and in the beginning of his trouble, gave expression to this fear continually. He slept poorly. After a few days he became much calmer, continued his musical duties, giving lessons to various pupils, and again assumed his place in the orchestra in which he was employed. It was noticed, however, that he gradually became less efficient as a musician, and in the midst of an important operatic engagement his services were dispensed with because he frequently caused disharmony through his mistakes. Immediately after his discharge, he exhibited delusional trends toward a famous singer whom he blamed for his dismissal. At the time I saw the patient, his thought content was full of ideas against this person, who, he said, had left no means unturned to humiliate him, going so far as to conspire with several of his co-workers to make it appear that his work was no longer satisfactory. This patient began to go to pieces rapidly, and one day ran away from home, jumped into a taxicab and rode around for hours, saying that he was a nephew of the king of Italy and a cousin to Caruso, and finally becoming so disturbed that he was taken to Bellevue Hospital. Here he was restless, euphoric and incoherent, and gave expression to a number of delusions against the singer whom he blamed for all his troubles. A sample of his stream of thought follows:

> I saved my wife from the cruelties of a famous singer; then I married her. Many women are in love with me. My father was also a wonderful musician like me and was an officer in the Eighty-First Cavalry in Italy. As a result of an attack of progressive paralysis which affected his mind, a wonderfully famous man was lost to the world. I, too, am a wonderful musician. I wrote an operatic masterpiece entitled "Boorei," which I have dedicated to my friend Caruso. He and Botti are to sing it at a banquet tonight. At this banquet I am to have thirteen apostles like Christ, and all the famous singers will sing for me.

It was only during the last few months of this patient's illness that marked physical signs of paresis were observed, although the serum reaction was positive from the very beginning. Curiously enough, it was never possible in this case to obtain the history of a syphilitic infection. The wife, who was extremely devoted, refused even to think of the possibility that her husband had acquired the disease. It was her idea (and she may possibly have been right) that he had suffered a hereditary infection. I have nothing but the wife's word that his father had died from general paresis. It should not require much argument to convince one that the sensitive, seclusive, neurotic make-up of the patient predetermined the early praecox-like reaction. He is now at the Central Islip State Hospital.

CASE 3.—N. M., a man, aged 34, married, an electrotyper, seen first, July 4, 1917, with his family physician, had been restless, talkative and quarrelsome, had felt too good, and had made numerous useless and extravagant expenditures for the past month. He had talked about going into business with millionaires and building million dollar hotels. In keeping with these grandiose ideas, he had been riding around in taxicabs, and ordering $10 and $12 silk shirts and other equally expensive apparel which he not only could not afford but did not need. He had been treated neither continually nor sufficiently for syphilis ten years before. His family physician assured me that he had known the patient from boyhood. The patient's wife and sisters gave me the history that he had always been extremely jolly, energetic and of a good-natured, bluff, breezy disposition. He was always the life of any party which he joined, was continually cracking jokes, and always made his presence felt in any company. Since boyhood he had been noted as a quick, witty talker, being bright and fond of company. Accordingly when, about a month before I saw him, he began to enjoy himself a little more than usual and to talk extravagantly, very little was thought of the matter. In fact, he had nearly ruined his wife and family by spending the savings of years before any one stopped to think that there might be something wrong with him mentally. At the time I saw him, the pupillary reactions, even after careful and repeated examinations, were all normal. His superficial and deep reflexes were active and equal, but there was a distinct unsteadiness with the eyes closed and some tremor in the hands and face. The speech was not defective. He was committed to the Manhattan State Hospital for the Insane, and continues in his euphoric state.

CASE 4.—J. S., a man, aged about 50, married, a leather merchant, had been a gambler and a "sport" all his life. His wife says that his first wife died from a broken heart because of his careless, profligate habits. He always made money easily, but was a spendthrift, although he did not drink. He never seemed content to stay home. He was restless, irritable, dissatisfied and fault-finding, slept poorly, and seemed to enjoy himself only when in the company of his boon companions. He would not even go to see his two children who lived within 20 or 30 miles of the city where he resided. In fact, until he became sick, he had seen neither of them for more than ten years. His children quarreled frequently with him about his habits, to no avail. His first symptoms were attacks of uncontrollable temper, great restlessness, and profound indifference. He soon became grossly inefficient, could not earn a living, and finally had to be committed because of his threats to kill either himself or his wife. The diagnosis in the case was confirmed by positive blood and spinal fluid examinations, as was the case with each of the foregoing patients. This patient also began to show somewhat rapid deterioration, grave defects of memory manifesting themselves almost from the beginning. The physical signs of paresis were present, but had been overlooked, the mental symptoms having evidently dominated the picture. The patient was sent to me from Wilmington, Del., for diagnosis, and is now in the State Hospital at Dover.

CASE 5.—F. S., a man, aged 35, married, had a make-up characterized by shyness, seclusiveness and a tendency to alternate moods of depression and elation. For a number of years, he had been separated from his wife, who is in Italy, and had often been found staring for hours at a picture of her

and his children, apparently in a very much dejected attitude. During his work, he suffered a severe injury to his right leg. This happened about four months before the onset of his mental trouble. After this injury, his right knee became ankylosed, as a result of which he limped a great deal in walking. He was very sensitive about this, and felt keenly his misfortune. Soon after this injury, about three months before, he became extremely restless, cried a great deal, and talked about sending for his wife and children. He could not sleep at all at night, and finally became so disturbed, especially if annoyed, that he was considered dangerous and was taken to the Kings County Hospital. A letter from this institution describing a week's observation stated that he was there from July 17 to July 25, when he was discharged. The letter further says:

> He had no anomalies and he did not show anything mentally while here, except possibly an inadequate emotional reaction. He had some sort of excitement in one of the wards and was restrained, but he explained that he wanted to get up out of bed and that they did not understand what he wanted, so when he tried to get up he was restrained. His physical examination was negative here. The Wassermann test was negative. We did not take a spinal fluid. We discharged him as not insane.

I saw the patient for the first time, July 29, 1917. At this time he was extremely emotional and restless. He said that he was going to make a lot of money and was going to organize a mutual benefit and protective insurance society in order to better the conditions of his fellow workmen and, incidentally, was going to make himself and me immensely wealthy. The neurologic examination was still negative. The pupils reacted well to light and accommodation. All superficial and deep reflexes were equal and active, and there was no clonus, no Babinski nor Rhomberg sign, but the speech was slightly defective and there was some tremor in the face and tongue. A Wassermann test taken at this time was positive, as was also the spinal fluid taken on the occasion of the patient's second visit to the Kings County Hospital and at the Kings Park State Hospital, where he now is. Here again we have a sudden onset in general paresis in which the disease shows no paresis at all. At least none of the physical signs of general paresis became apparent until long after the mental symptoms attested the presence of the psychosis.

CASE 6.—H. M., a man, aged 54, single, when first seen, in July, 1916, showed no anomalies of behavior and suffered from no emotional defects, but was almost blind and greatly paretic. There was a distinct memory defect, particularly for recent events and dates, and retention was poor. But I have no doubt whatsoever that, if any attempt had been made at that time or even since to commit this patient, no judge would have signed the petition because there was not a single mental symptom except loss of memory. The patient's symptoms were almost entirely physical, and began with sexual impotence during the spring of 1914. This was followed by gradually failing vision, weakness in both legs, and a heavy, dead feeling throughout the body, together with considerable pain in both shoulders which had been diagnosed as rheumatism. He exhibited a coarse tremor in the face, tongue and hands, was markedly ataxic, and had a distinct Rhomberg sign, an Argyll Robertson pupil, and the thick, slurring elision speech characteristic of this condition. He also had a double optic neuritis. Intensive intraspinal and intravenous treatment was given after the diagnosis was serologically corroborated, with the following results: The patient is still outside an institution for the insane, but suffers from a double spastic condition in both legs. His sight has been restored, so that he is $^{20}/_{40}$ in the right eye and $^{20}/_{30}$ in the left. The optic neuritis has disappeared, as has also the Argyll Robertson pupil. Mentally the patient's condition has not changed at all since the first day he came under observation. He is being cared for in a general private hospital, is quiet and fairly well behaved, has no delusions nor hallucinatory experiences, and has exercised a very close supervision over his business affairs, paying his own bills and exhibiting considerable interest in a large business which is executively run by his brother. The patient has a double Babinski sign and a clonus in both the patellar and ankle tendons, showing marked destruction of the corticospinal tracts. If it were not for this, I believe that he could with safety take an active interest in his business affairs. His make-up was always considered normal. He was a highly respected, hard-working business man, and exhibited no peculiarities until the onset of his troubles. These have consisted mainly of physical symptoms aside from the memory defects.

CASE 7.—A. N., a woman, aged 38, married, had always been a hard-working, efficient, capable housewife of a sociable type, always reliable until two years before I saw her, Aug. 5, 1916. She began with trembling of the hands and a rather acute enlargement of both the lateral lobes of the thyroid. Her face became flushed and she developed palpitation of the heart and a marked exophthalmos, with spells of excitement and depression which were designated as hysterical. She became fearful and apprehensive, would not let her husband leave her, and cried when he left her in the morning to go to work. She was treated for exophthalmic goiter, but instead of improving became gradually worse. After a few months' treatment she began to deteriorate quickly, smiled foolishly, became talkative, good natured and silly, ate ravenously, and would sleep for twelve or thirteen hours at a stretch. The dementia in this case came on very rapidly. When I saw her she was perseverating, her speech was unintelligible, and she was disorientated for time, place and persons. She had a distinct Argyll Robertson pupil, irregular and unequal tendon reflexes, a positive Rhomberg sign, etc. It is very evident that the symptoms in the early part of this patient's trouble were determined entirely, or in a great part, by the evidences of hyperthyroidism that dominated the picture.

CASE 8.—This case is of interest because of the possibility of the existence of a hereditary condition, in which respect it is exactly like the second case. The patient's father is definitely known to have died from paresis, because I have seen the correspondence between the patient's family physician and the superintendent of the insane asylum, in which Bianci wrote the diagnosis of the father's condition. F. M., a man, aged 29, single, a hatter, seven or eight years before I saw him, June 1, 1916, began to have convulsions. These attacks came on at first every few months, and later three or four times a week. They lasted for a half hour or more, and were either preceded or followed by attacks of pain in the head, loss of speech, and episodes of excitement, fear and apprehension. Seven or eight weeks before he began to show grave defects of memory, he became mildly euphoric, menacing, assaultive and finally very threatening. The patient's sister is a morphin addict, and a younger sister is affected with dwarfism and imbecility. The older sister has a positive Wassermann test and an Argyll Robertson pupil. She is extremely emotional, but efficient and a good dressmaker, although she has to rest frequently because "of her nerves." According to the mother, who is the only one in this family that can be trusted to give a reliable history, the patient was always headstrong, impetuous and excitable, and on several occasions had got into trouble with the authorities. As it was impossible to keep him at home, he was committed to the Central Islip State Hospital, where the diagnosis was confirmed serologically and where he was one of the most troublesome patients in a disturbed ward. He died recently, but during his residence in the hospital he showed the most prolonged and sustained period of excitement I have ever seen in a case of general paresis.

CASE 9.—L. D. L., a man, aged 38, married, seen Aug. 17, 1916, was a familiar type of a very amusing nature. He was a "sporty," flashy Italian barber, talkative, fond of the opera, sure to attend any sporting event, and addicted to cards and the race track. In fact, he was fond of everything except his business, his wife and his family. In his own home he was a brute and a miser; outside it, he was a liberal hail fellow well met. Sixteen years ago, his wife said, he contracted syphilis and was very careful to receive prolonged, intensive and persistent treatment for three years, after which he was declared cured. A year before I saw him, he had wagered his barber shop, which the wife was running and which possessed considerable value, in a poker game. The wife thought that her husband's peculiarities had developed a little beyond the normal, and asked the family physician

for advice. When I saw the patient, he was frankly affected with general paresis, and was restless and euphoric with all the physical signs, namely, an Argyll Robertson pupil, ataxia, tremor, defect of speech, etc. He became so annoying that he had to be committed to the Central Islip State Hospital, and the diagnosis was confirmed by positive blood and spinal fluid examinations, at that institution, where he died two months ago.

CASE 10.—S. D., a man, aged 46, died in the institution for the insane at Overbrook, N. J., within three months after I saw him. He was a common day laborer of low mentality, with no more than the average intelligence and education for one of his station, and he undoubtedly had had his disease for a long time before it was considered necessary to ask medical advice. His mental symptoms consisted entirely of memory and retention defects. There were no delusional trends and no hallucinatory experiences, no excitements, and no depressions of any importance. Physically, all the symptoms were exceedingly well marked, including the Argyll Robertson pupil and the ataxia, and signs of the pyramidal tract destruction as shown by exaggerated tendon reflexes. The Babinski reflex, the clonus, etc., were all present. Soon after admission to the institution, the patient began to lose control of his bladder and rectal functions, and died greatly emaciated. The diagnosis was confirmed by a positive serum reaction. The patient's personality was normal for one of his class, which was that of the ordinary, average Italian day laborer.

CASE 11.—E. A., a man, aged 37, single, had four brothers who run a large wholesale grocery business in New York and have been highly successful business men. They told me that since the patient was 15 or 16 years of age he had practically always been a burden to them and a source of constant worry and despair. When he worked at all, he worked for them. He was unreliable, dull, indifferent and ungrateful, but usually so good natured and amusing that they never really lost patience with him. He would say flippant and silly things, and always took life as a huge joke. He was certainly an inferior, if not distinctly a pathologic type. During the past five or six years, the patient's brothers informed me, he had become more dull and stupid, could not be trusted to perform even little errands, had stolen small sums of money and then laughed about it when he was accused, could not make change of small denominations over the counter, and finally had become so grossly inefficient that they had sought medical advice. April 18, 1917, when the patient was brought to me, he presented all the physical signs of paresis greatly marked, together with profound defects of memory, perseveration, echolalia, profound emotional and intellectual dulling, and a severe, restless euphoria with considerable excitement. After the diagnosis was confirmed by means of the blood and spinal fluid Wassermann test, he was committed to the Manhattan State Hospital, remained there about three months, was taken home, and died a few days later.

CASE 12.—M. D., a man, aged 34, has a peculiar personal interest for me. He was a boyhood friend, was always very quiet, timid and reserved, and out of a large class of boys made friends with only two, another comrade and myself. He was extremely sensitive to ridicule, and the other members of the class who knew of this goaded him so that he was compelled to fight them in order to get some peace. The three of us were very friendly, however. The other comrade and I understood his exquisitely sensitive nature so well that we never chided him, and so got along with him very well. He seemed always to be thinking of something, and very often conversation addressed to him found him uninterested and at times absolutely unheeding. Gradually I lost sight of him; but he followed a mechanical bent, and became a successful electrotype engraver. He commanded a very large salary, and I always understood that his services were much sought after. He continued his friendship with this other comrade, and I saw him only occasionally. His general characteristics had not changed. He was still shy, sensitive, and given to moments of abstraction and day dreaming. One day about five years ago, I met him and was informed that he had married. A few weeks later, I met our mutual friend, who informed me that the patient had married a disreputable woman and was making a reputation for careless spending and unusual sociability that was quite surprising. Married life for him, however, was not successful, and at the end of a year and a half of difficult family situations, he secured a divorce from his wife and began drinking. He drank rather heavily for several years, I was given to understand, and then quit suddenly. A few weeks after he quit his alcoholic indulgence, he began to give expression to various delusions of persecution by members of his family. He accused his father and mother of ruining his life and of foisting an unfaithful woman on him as his wife. He accused his brother of stealing his good name and of being unduly familiar with his former wife. He became suspicious that his food was being tampered with and finally became extremely excited, assaultive and threatening, yelling, particularly at night, at the top of his voice. The family sent for me, and I saw him with the physician who had treated him, and every one was shocked when I suggested that his condition was paresis. The diagnosis was confirmed, however, by a positive serum reaction, and because of the extreme emotional unrest, he was removed to Dr. Barnes' sanatorium at Stamford, Conn. If the other case mentioned above was unusual for the protraction and severity of continuous excitement, this one was unique for the intense episode of excitement that followed. Despite powerful sedatives, this patient did not sleep a wink at the sanatorium for three weeks. In reaction to his delusions, he yelled continuously, shouting defiance to his enemies and fighting to be allowed to get at them. Finally the authorities at the sanatorium refused to keep him on account of his disturbed condition, and he was brought back to New York and committed to the Central Islip State Hospital for the Insane. He deteriorated rapidly, however, at the latter institution and died a few months after the diagnosis was made. Even by us as boys, he was recognized as peculiar, and several who remembered him when they heard of his death said they were not surprised that he died from some mental disorder, because they had always thought there was something wrong with his mind.

COMMENT

In presenting these cases, it is not my object to formulate a proposition that any particular type or types of individual are prone, granted first the presence of the syphilitic infection, to develop paresis. It seems, nevertheless, to have been amply demonstrated in these cases, first, that individuals possessing unusual, abnormal personalities are more apt than those of normal personality to develop paresis, and second, that after the development of this disease, the mental symptoms of paresis in these patients dominate the situation to the practical exclusion of physical symptoms. At least, putting it in another way, I may say that when patients possessed of neurotic, seclusive or emotionally unstable personalities develop general paresis, they are apt to exhibit themselves in their psychoses as florid, euphoric, emotional types. Recognition of this fact, it seems to me, is important because it indicates a measure of prophylaxis that should be taken in all our syphilitic patients who possess abnormalities of personality. Any patient of this type who comes to the general practitioner with syphilis should be observed carefully and continuously. Even more than any other individual suffering from syphilis, he should receive intensive and repeated antisyphilitic treatments. These patients should have examinations of their spinal fluid made from time to time, and every safeguard of a prophylactic nature now within our power should be used against the development of paresis. Thus it may be possible that in the future the 3 per cent. of all syphilitics who have heretofore developed paresis will be spared the agony and the unfortunate ending that almost invariably accompany this disease.

SUMMARY

In eleven out of the twenty-five undoubted cases of general paresis reported in the original study, the influence of the individual's make-up on the character of the reaction observed is conclusively shown. These were dispensary patients, about whom it was not always possible to obtain information as reliable and detailed as that obtained in the twelve cases reported in this article.

Each one of the twelve cases is also undoubtedly one of general paresis, the diagnosis being confirmed by blood and spinal fluid examinations. In nine of these cases, the influence of the personality in determining the character of the psychotic reaction is conclusively shown. The other three, namely, the husband of Patient 1, Patient 6 and Patient 10, also undoubtedly had general paresis, but the patients seem to have been normal before the inception of their disease, as far as their make-up could be determined.

Grouping these thirty-seven cases, I find that in twenty of them it was possible to demonstrate my contention that paresis of the psychotic type occurs as a general rule in persons possessing abnormalities of make-up.

In seventeen cases in which it was impossible to demonstrate this point, the paresis existed mainly as a physical disease, the physical signs of this condition being dominant.

In neurotic persons infected with syphilis, the period of observation and treatment must be indefinitely prolonged because it is fairly evident that paresis occurs by preference in persons of this type.

I do not like to leave the subject without making reference to the work of Reasoner, Noguchi and Nichols with various strains of syphilitic organisms as a result of which they seem to have proved conclusively that certain strains have a predilection for infecting the nervous system. Reasoner[2] states, however, in his sixteenth conclusion, that "Granting that there are strains or types of syphilis, differing in invasiveness or predilection for certain tissues, and having in mind more especially the nervous tissues, the individual resistance of the infected person must still be considered as a possible factor in the development of the disease." It would appear, therefore, that the investigation which we have made and which seems to show the great influence the individual's make-up has on the character and development of paresis can be interpreted as being "the individual resistance of the infected person." Although it is hardly fair to call into evidence the illustration of a single case in support of my contention, nevertheless, the opportunity is taken of calling again on my first case in this report in which both the wife and husband are infected with paresis. The husband was undoubtedly the first infected. If it is taken for granted that he infected the wife with his own particular strain of syphilitic organism, is it not rather peculiar that she did not show the same sort of reaction that he did? This case tends to illustrate the point made by the investigators mentioned, namely, the existence of specific strains of spirochetes which have the peculiar power of causing nervous syphilis. It also particularly well illustrates the point I wish to make, namely, that, given the presence of syphilitic infection in two persons, and especially of a specific nervous system strain of syphilitic organisms, it is still possible that the character of their mental reactions may differ markedly, despite the fact that they may develop paresis, for instance. Whether this difference is explained by Reasoner's phrase "the individual resistance of the infected person," or by the conception of Adler of organ inferiority, it is difficult at this time even to speculate. Particularly would it be unwise to draw conclusions of a definite character in view of the statement of Weygandt and Jakob[3] who, as well as Reasoner, worked with rabbits:

> We also found that the animals infected with the same strain in some cases developed nervous syphilis and in some cases did not. This militates strongly against the theory of "virus nerveaux."

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2. Reasoner, M. A.: Some Phases of Experimental Syphilis, THE JOURNAL A. M. A., Dec. 16, 1916, p. 1799.

3. Weygandt, W., and Jakob, A.: Warum werden Syphilitiker nervenkrank? Dermat. Wchnschr., 1914, **18**, 150 (quoted by Reasoner).

BILHARZIASIS IN SOUTH AFRICA

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In certain parts of South Africa a varying proportion of the population suffers from hematuria, caused by the presence in the urine of numerous spine-pointed eggs. The condition is due to a trematode worm, *Schistosoma*, which inhabits the blood-vessels of the bladder and portal system. It is especially prevalent among the school children of the low veldt, and careful analysis of certain schools has shown that 80 per cent. of the boys and one in ten of the girls are infected.

Many of the young persons who harbor the *Bilharzia* worm complain of no other sympton than that of hematuria; but in most instances this is remarkably protracted and, when the more obvious signs of the disease have disappeared for many years, ova may still be present in the urine. In the severer forms of the disease patients complain of constant or occasional aching pains in the back, pain on micturition, and renal colic. Severe exacerbations of the symptoms are noticeable in many instances. In some schools anemia, general malaise and backwardness among the pupils who are bilharziatics are very noticeable.

For many years the disease was attributed to bathing in infected rivers and stagnant pools, but the cercariae which caused it were not known. In June, 1915, Dr. E. Warren of the Natal Museum at Pietermaritzburg drew my attention to some cercariae which had developed in specimens of a common fresh-water snail, *Physopsis africana*, which had been exposed to infection from the urine of a patient of mine who was suffering from *Bilharzia* disease. These cercariae were similar to those which Drs. Leiper and Atkinson[1] had described as causing Asiatic schistosomiasis, and the description of them[2] proved to be the first that had been published in Africa. During the next few months I collected several hundred specimens of this snail from various parts of Natal which were known to be heavily infected with *Bilharzia* disease. In some pools I found *Bilharzia cercariae* in 10 per cent. of the specimens I examined. Though I examined an equal number of other species of snail from these same pools, I failed to procure *Bilharzia* cercariae from any other snail than *Physopsis*. At the same time I attempted

1. Leiper, R. T., and Atkinson, E. L.: Brit. Med. Jour., 1915, **1**, 201.

2. Watkins-Pitchford: Med. Jour. S. Africa, July, 1915.

to infect with urine from a *Bilharzia* patient numerous specimens of the commoner species of snail. I failed to produce infection in any other than *Physopsis*,[3] but, in dealing with specimens of the latter snail, which I obtained from infected rivers, I demonstrated a distinct increase of infected specimens in those I had exposed to possible infection by miracidia hatching out of ova from the urine of an infected person.

In October, 1916, Becker[4] reported that he had found three adult schistosomes in the portal vein of a guinea-pig to which he had given a hypodermic injection of cercariae from *Physopsis* six months previously. These cercariae, which he had obtained from Nijlstroom in the Transvaal, were similar to those I had found at Durban and Maritzburg in Natal.

I have found cercariae answering to the description of the schistosome group, in possessing a divided tail and showing an absence of esophagus, in 102 specimens of *Physopsis* I have had the opportunity of examining from various parts of Natal and the Transvaal. Some of these cercariae have the appearance of avian trematodes and are common in specimens collected from the Umsindusi River at Maritzburg. I have found a cercaria similar to that for which I have suggested the name *C. secobii*, in a specimen of *Isidora schakoi* Jick, from a pool at Potchefstroom in the Transvaal. On one occasion I came across an eye-spotted furcocercous cercaria[5] in a sporocyst developing in one of the snails I had collected from the brickfields at Durban. The cercaria which produced the *Bilharzia* worm in Dr. Becker's guinea-pig is from 0.5 to 0.6 mm. in length, the tail is divided into two prongs for about a quarter of its length, and the alimentary canal of its body, which runs backwards from the oral sucker, bifurcates into two, just anterior to the ventral sucker. This cercaria, like all furocercous forms, swims backwards. I have found it in twenty-three specimens of *Physopsis* at the Durban brickfields, or 14 per cent., and in infected specimens at Maritzburg, Rustenburg, Magaliesburg and Mulder's Drift — all areas infected with *Bilharzia*.

The Crocodile River is one of the longest in South Africa, and is known to carry the infection. I have found several small pools near its source where *Physopsis* is particularly abundant[6] and where its eggs are continually being washed downstream. I have also come across pools close to the source of the river where numbers of *Bilharzia* carriers are continually bathing and using urinals close to the river bank, and have suggested the use of cyanid of lime to destroy the snails in these pools and by-laws to prevent persons who are suffering from this disease from bathing in the open or defecating close to the streams. A great deal has been done to assist in the eradication of *Bilharzia* disease in South Africa, by warning schoolchildren of the danger of bathing in infected rivers. Recently active measures have been taken by the educational authorities of Natal and the Transvaal, and some definite results have been achieved. These measures have included the use of disinfectants in the urinals of infected schools, thus helping to destroy the eggs before they reach fresh water, where they rapidly hatch on a warm day; and the encouragement of sea bathing or the use of rain water baths instead of river swimming. Much more could be done by the public health authorities to remove the decomposing reeds from stagnant water, fill in unnecessary pools, and enforce suitable by-laws. As the disease exists in certain well defined areas in various parts of the Union, it is surprising that more active measures to eradicate a disease of such importance have not yet been taken.

So far, we have not been able to determine how this cercaria of South African rivers, which develops in a common fresh-water snail, enters the human subject, but from the observations of scientific observers in Japan,[7] Egypt[8] and Venezuela[9] there can be no doubt that the cercaria may enter any part of the body of a person who bathes or even wades in infected streams, and that the cercaria may penetrate the lining of the mouth of anyone imbibing water containing it. Having found their way to the portal system, these trematodes, which have now lost their tail, grow to be from a half to three quarters of an inch in length. After some years they often die out without treatment, but I have met persons who have manifested symptoms of the disease for many years, though they have, as far as possible, avoided the possibility of fresh infection.

Among the many drugs that have been advocated in the treatment of *Bilharzia* disease, hexamethylenamin is probably the most effective.[10] I myself prefer to combine its use with buchu. Sodium salicylate is also of service, especially when there are pain and renal colic. Some persons have advocated the use of benzoic acid; but any of the drugs that have been suggested with the object of destroying the parasite in the blood stream would seem to be equally unavailing. Rest and a light diet often result in improvement without drug treatment, but the symptoms are only too likely to recur. The disease may often die out without treatment of any kind. In all cases in which there are obvious symptoms I recommend hexamethylenamin, combined with other forms of treatment, and, when there is much pain, hyoscyamus is indicated, or sometimes morphin. Many cases show every indication of renal calculus when none exists, and, generally speaking, operative treatment is better avoided in the treatment of *Bilharzia* disease. The ova have been found in the lungs, the liver, the appendix and other parts; but it would appear that they cause symptoms only when they accumulate in the kidney or bladder and form gravel or stone, or as they escape through the bladder wall, where they give rise to a varying amount of hemorrhage and thickening of the bladder wall. At one time it was a common practice to wash out the bladder of these patients, but such treatment would seem only to aggravate the complaint and increase the tendency to bacilluria, which is common in severe cases. Arsphenamin (salvarsan), santonin, thymol, male fern and methylene blue have all been tried; but, so far, we know of no more effective remedies than those that are usually prescribed as urinary antiseptics.

The urine of a *Bilharzia* patient usually contains a considerable amount of blood and a certain amount of mucus. The ova vary in size in the same specimen of urine; the average size of a fairly well developed ovum in the Transvaal or Natal is 0.15 mm. in length and 0.0625 mm. in breadth. The terminal spine of the shell is 0.125 mm. long. When a drop of warm water is added to the drop of urine on a microscopic slide in

3. Cawston, F. G.: Lancet, London, 1915, **2**, 1427; ibid., 1916, **2**, 121.
4. Becker, J. G.: Med. Jour. S. Africa, October, 1916.
5. Cawston, F. G.: Jour. Parasitol., 1917, **3**, 131.
6. Cawston, F. G.: South African Med. Rec., Oct. 27, 1917.
7. Mills: China Med. Jour., Review of Recent Japanese Literature, 1917.
8. Leiper, R. T.: Proc. Roy. Soc. Med., 1916.
9. Iturbe: The Intermediary Host of Schistosomum Mansoni in Venezuela, 1916.
10. Cawston, F. G.: Brit. Med. Jour., 1915, **2**, 746; ibid., 1916, **2**, 144.

a good light, movement is soon detected in the shell of the egg, and a ciliated embryo, called the *miracidium*, escapes through the ruptured shell. This miracidium, which is covered with cilia except at its head end, is 0.1125 mm. in length and 0.065 mm. in breadth. These free-swimming organisms attack any specimens of *Physopsis* in the water and, burrowing their way to the liver substance, form sporocysts, producing daughter-sporocysts by budding and cercariae by division. I have never seen any sign of redia formation in snails containing *Bilharzia* cercariae in South Africa, though I have seen a furcocereous cercaria with the appearance of an avian trematode, developing in typical rediae. At the end of three weeks these cercariae are fully developed and ready to attack man. Neither the miracidium nor the cercariae it produces in the substance of the fresh-water snail can live as free-swimming organisms for more than a few hours, and it is very hard to procure satisfactory microscopic preparations of either.

These observations help to confirm the conclusions arrived at by independent investigators in other parts of the world. Work of this kind covers a remarkably large field, and the ground covered by those who have been investigating this subject in Egypt will be remembered as one of the achievements of science during the present war, though we are primarily indebted to the Japanese for the very brilliant piece of work they have done in elucidating the life cycle of the *Bilharzia* parasite of man.

RECURRENCE OF URINARY OBSTRUCTION AFTER PROSTATECTOMY

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In the past few months I have had occasion to reoperate in five cases of prostatic obstruction in which a suprapubic prostatectomy had previously been done.

One of these cases was one in which I, myself, had operated. The other operations had been done by men of experience in Kansas City and elsewhere. In two of the cases I assisted the original operator to correct the secondary obstruction.

The usual history of these patients was of their having made a good recovery from the operation, of having left the hospital in good condition in from four to six weeks, voiding urine well and being apparently cured. From that time on, the size of the stream would progressively diminish, and it would become more difficult to void. Finally the suprapubic wound would reopen and remain open, and the passage through the urethra become closed, or nearly so.

In the case in which I had done the original operation, the patient had been dilated with sounds up to 32 French, every few days up to the time of leaving the hospital. From after events and from experience with other cases, I am now convinced that the tip of the sound never entered the bladder, but that the beak could be rotated in the cavity of the prostate.

All five of the cases, with the exception of one in which a second operation had been performed previously without relief, presented the same general characteristics. In all of them the prostatic hypertrophy had been completely enucleated, and there was no tissue to be removed at the second operation.

To understand what had happened in these cases of secondary obstruction, it is necessary to review the pathologic anatomy of the hypertrophied prostate.

It has long been known, but yet is far from being universally known, that the word "prostatectomy," as generally used, is a misnomer. The work of Tandler and Zuckerkandl in Vienna, and Wilson and McGrath of the Mayo Clinic, has shown that the encroachment of the fibro-adenomatous growth in the prostate gland will crowd the surrounding normal prostatic tissue to the periphery, making of it the surgical capsule of the hypertrophied gland, containing also the ejaculatory ducts behind. This is the part of the gland that is normally left when a so-called prostatectomy is done.

When hypertrophy of the benign type has occurred, and more especially when the greater part of the enlargement is in the median lobe, the urethra is much elongated by reason of the protrusion of the mass through the sphincter vesicae and into the lumen of the bladder. The sphincter vesicae is stretched, but intact, as the growth pushes through it. This leaves the sphincter, not at the vesical orifice, as normally found, but somewhere at the outer side of the protruding mass.

In the cases under discussion, the prostatic hypertrophy had been enucleated without wounding the sphincter. The sphincter had then regained its tone and had come together, forming a sort of tympanum above the cavity of enucleation, and between it and the cavity of the bladder.

On opening the bladder in one of these cases, one finds the vesical orifice represented by a mere dimple on the internal surface of the bladder. With a sound in the urethra it is often quite difficult to push the tip through the opening, even with the aid of a finger in the bladder. The cavity below is frequently of such a size that a short-beaked sound may be rotated within it. The lower segment of the bladder, being drawn up by the contraction of the sphincter, has made no attachment to the lateral walls of the cavity of the prostate, nor any attempt to approximate the mucous membrane of the bladder to that of the cut urethra near the apex of the gland.

The questions arise why all prostatic enucleations are not followed by this result, and what the remedy is for it.

The reason it does not happen in every case is that the traumatism ordinarily incident to enucleation is sufficient to prevent the restoration of the sphincter until the lower bladder segment has become adherent in the prostatic cavity and its mucosa is becoming coapted to that of the urethra. This traumatism, while usually inadvertent, has thus served a good purpose.

The way to prevent this very undesirable sequel to an otherwise successful operation is, therefore, intentionally to divide the sphincter vesicae at the time of operation, preferably at the lower margin, and not to try to do a purely urethral enucleation, leaving the sphincter intact.

The remedy for the condition at secondary operation is the same, namely, to divide the sphincter. This division should be to the under or posterior side of the opening, as the orifice is usually drawn well forward toward the symphysis, and the posterior is the thickest side. I have used Young's prostatic punch in making this cut, but think division by cutting and divulsion to be as efficacious.

The secondary operation should be followed by systematic dilatation of the bladder neck for at least a year, first weekly, then semimonthly and monthly. This is preferably done with the Kollmann dilator with the Guyon curve, as the beak of this instrument will most certainly go into the bladder.

The patients on whom a second operation was performed are all in good condition, as far as I know, except one who had been operated on twice before coming into my hands. He healed up well above, but had a weak voluntary sphincter, and has incomplete control of the urethra. At times he retains well, but has spells of incontinence. This patient has also a syphilitic history, and although his reflexes are active, I suspect that syphilis is a factor in the poor result.

This short series of five cases is too few on which to base any conclusions, other than those already stated. The similarity of these cases is striking, and they seem to give a clear indication for the intentional division of the vesical sphincter at the time of operation.

CONDYLOMA OF THE BLADDER

REPORT OF CASE

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The report of unusual cases, together with an acknowledgment of mistaken diagnosis, must always be a chief means in the advancement of our science. The rapid strides made in diagnosis of bladder tumors in the last three years through the aid of the modern cystoscope has tended to make us overconfident. For this reason I undertake to report a case of carcinoma of the bladder incorrectly diagnosed. I wish also to make a few suggestions which in the future may aid us in such cases.

REPORT OF CASE

History.—Mrs. F., aged 30, Jewish, complained of painful and frequent urination accompanied by hematuria. The family history was negative. She had always been well till the present illness. The menstrual history was negative. The patient had had no leukorrhea.

She was married six years before I first saw her. At about this time she acquired gonorrhea and was treated with astringent bladder injections by a midwife. The following year, she had a miscarriage at the third month, as the result of a fall. No pregnancies had since occurred.

The patient was inclined to date the onset of her illness from the bladder irritation induced by the astringent bladder injections used in connection with the treatment for gonorrhea. The trouble became more pronounced after the miscarriage, for which she was in a hospital six days. Two months later, she had marked difficulty in voiding, and was catheterized for a short period by a midwife. At this time, she had severe burning pain in the bladder region. Five or six weeks later, she noticed a few drops of blood in the urine at infrequent intervals. This bleeding did not become persistent until January, 1917, when she began to pass some bright blood at each urination. Two years before I first saw her, she had a long course of bladder irrigations without benefit, except to control the tenesmus. A year ago she began to pass gravel and clots containing stone. She has noticed that free drinking of water improves her symptoms. Though bleeding more freely, she has gained in weight during the last few months.

Physical Examination.—This was negative. The blood and spinal fluid Wassermann reactions were negative. On two occasions the vaginal smear had a few pus cells with rare diplococci, very suggestive of gonococci, but none were found to be intracellular.

October 23, cystoscopic examination revealed a large coral-like mass obstructing the view of both ureters, with smaller patches lying free on the floor of the bladder, and one patch on the anterior wall. This polypoid growth was on a short pedicle, and was overlaid with a thin urinary salt deposit, which was not sufficient to grate against a metal instrument. There was no tendency to bleeding except as the salts were dislodged from the surface. The specimen of urine obtained showed a little pus with a considerable number of blood cells.

October 24, an attempt was made to remove some tissue for microscopic examination, through the cystoscope. The examination revealed the presence of pus clot with lime salts.

A second specimen was obtained three days later, when clot and salts were again reported.

Operation and Result.—November 1, operation under ether was attempted as an exploratory measure, in the hope that some portion of the growth could be removed, the ureter transplanted, if necessary, and remaining portions left for fulguration. A thick wall of fat was encountered, hindering the operation considerably, but when the bladder was opened it was found that the tumor was very firm and that it completely encircled the urethral orifice, as well as both ureters, with hard nodules on the anterior wall of the bladder. The tumor did not project from the bladder wall, but seemed to be infiltrating so definitely that the wound was closed with suprapubic drainage, as in an inoperable case of carcinoma.

Convalescence was good until the fifth day, when a minor infection in the fatty wall set up a severe cystitis. At first this did not react to irrigation, and some bleeding was encountered until the irrigating solution was changed to one of dilute antipyrin. Quite suddenly the infection cleared, and the wound was completely healed on the twenty-second day. The patient claimed to be feeling normal, with no burning, voiding only once in three or four hours instead of every half hour, as before the operation.

At this time the correctness of the diagnosis was doubtful, and the examination for syphilis was repeated with a provocative arsphenamin (salvarsan) injection. The result was again negative, as was also the pelvic examination.

November 22, the urine was absolutely clear, containing no blood nor pus. Cystoscopic examination revealed a normal bladder mucosa even around the ureteral openings, which were clearly seen. All signs of the tumor had disappeared except a very small flat patch far back in the floor of the bladder.

The patient returned to the hospital within a week, denying all symptoms and absence of any frequency. A week later, the bladder was again examined and showed considerable diminution in the size of the area. Up to January 8, the patient was observed weekly. At the last two examinations there was absolutely no evidence of the former growth. Since her discharge from the hospital, she has had no treatment except the weekly bladder washings received during her visits.

COMMENT

For lack of better classification, I have chosen to describe this case as one of condyloma. The accepted grouping of bladder papillomas into benign and malignant types is only arbitrary. Our criteria of diagnosis are still in their infancy. From the appearance of certain types and their multiplicity, we have assumed that all such tumors are malignant. Some authors may take exception to this statement. But is it not essentially true? Do not the men who see a cauliflower growth with multiple tumors treat these cases as malignant? This is the natural result of surgical experience with malignancy anywhere in the body. Because of this fact, we are compelled to read reports of unusual cures of cancer of the bladder.

When pathologic diagnosis can be obtained, we cannot doubt the validity of these reports. But in just such cases as the one I present we hear of cure by cautery or operation without this established diagnosis. It seems that there must be other similar cases of new

growth excited by chronic irritation that may have been falsely diagnosed. Therefore the urologist must be cautious in his treatment unless the means are at hand to establish his convictions by the microscope.

CONCLUSIONS

1. Diagnosis of cancer of the bladder must not be made without microscopic evidences.
2. Long-continued, chronic irritation may give rise to warty proliferation of the bladder mucosa, not unlike cancer.
3. The chronic irritation may have its origin in a gonorrheal infection, and takes a form not unlike the condylomata acuminata and deep urethral polyps of similar origin.

University Hospital.

PRIMITIVE SURGERY OF THE WESTERN HEMISPHERE*

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Two causes of surgical and medical ailments were universally recognized among the early inhabitants of the Americas, one natural and the other supernatural. If the cause was not easily perceived, as was often the case, it was regarded as supernatural. The supernatural diseases were supposed to originate in various ways: by the casting of spells, by contact with some objectionable person or thing, or by the presence of something in the system, such as an evil spirit, a stone, a piece of wood, a worm or an insect. Manifestly, they came just as near to the recognition of bacteria as they could without knowing anything about them.

Fig. 1.—Head of Peruvian mummy, showing trephine opening in left temporal region, and an apparent right facial paralysis (U. S. Ethnological Reports).

It must not be thought, however, that real causes were not given their due significance, if they made themselves sufficiently apparent, as often happened in surgical lesions at least. The ancient members of our profession were by no means always as childish as they are sometimes represented to be. It goes without saying that supernatural ailments can be treated by supernatural means only, which accounts for the existence of the so-called medicine-man, with his impressive fetishes, antics and incantations. In this connection it should be understood that the word "medicine" was not confined originally to material remedies, but had in addition a magical and supernatural significance. Hence, a "medicine-man" was not only a physician in our sense of the word, but was also a sort of priest, prophet, magician and all-around dealer in the mysterious.

THE MEDICINE-MAN

The medicine-man[1] was usually a person of more than ordinary tact, knowledge and intellect. In addition to being a surgical and medical authority, he also was consulted on many things concerning the spiritual and temporal welfare of his people. Although dealing extensively in the occult, he had a dignified and firm belief in himself and his methods, and was much in earnest in spite of the legerdemain and grotesque dress and actions that he employed to emphasize his doings and impress their importance on the observer. There is even reason to believe that his fantastic dances and gestures, facial contortions and weird chantings exercised a hypnotic influence on his patients, leading to relaxation and sleep, which may have facilitated the recovery of some who would have been given up to die by more civilized practitioners. In fact, when one comes to think of it, such things are merely an exaggeration of that "personal influence" which every physician is supposed to exercise in greater or less amount.

Fig. 2.—Square trephine opening (U. S. Ethnological Reports).

To a certain extent, the medicine-man was the protector of the persecuted, and the refuge of the fugitive. Even an enemy could find sanctuary in a medicine-

* Presidential address delivered before the Western Surgical Association, Omaha, Dec. 14, 1917.

1. Although the title is masculine, it is interesting to note that there were also "medicine-women," who held high places in the profession and no doubt deserved the confidence placed in them by their clientele. The costume and make-up of a typical medicine-man is well described by M'Clenachan: "The face is painted, usually red, with yellow trimmings about the eyes and mouth. The hair, always worn long, has a tuft of feathers braided in at the crown; and to braids of hair hanging about the shoulders are attached horsehairs, snake rattles, shells, etc.; over all is dusted red and yellow paint. The ears are pierced by numerous rings, and suspended from them hang shells, reaching to the shoulders. About the neck are strings of bright colored beads, with bird's claws, pebbles, buffalo teeth, etc. The wearing apparel consists of a shirt made of rawhide, leggins, breech clout, moccasins, and over all a blanket or buffalo robe. The shirt is daubed with paint, with some hideous image on the breast. The leggins are made to fit closely, but with a wide strip along the outside, to which is attached beads, bones, etc. The blanket or robe, in either case gaily adorned, is loosely thrown over the shoulders." Of the medicine-man's methods of treatment, Hrdlicka succinctly says: "The treatment varies according to the supposed necessities of the case, consisting of propitiation of broken tabus, repeated prayers to the elements or deities, the deposit of prayer sticks or countercharms in shrines, or appeal to the patient's personal protector or totem, the use of especially effective songs, rubbing or kneading (sometimes quite violent, though employed more commonly for supposed magic effects), rubbing liquid medicine into the skin, extraction of the objective cause of the disease, blowing air or tobacco smoke onto the patient, passes with fingers moistened with saliva, ceremonial observances or rites including painting of the body of the patient as well as that of the medicine-man and making sand paintings, noises (made with voice, rattle or drum), commands and exhortations to drive away bad spirits, assurances given the patient, various symbolic representatives, purification of the body by sweat baths, purging and emesis, strong sucking, cauterizing, scarifying, bleeding, external applications, the administration, externally or internally, of secret magic or other medicine, and various regulations of the behavior of the patient. In the larger curative ceremonies several medicine-men acted conjointly, or, if but one is present, he may have from one to several assistants."

lodge, where his wounds were dressed and his other needs attended to. We should indeed be proud that this same spirit has always characterized the medical profession of all times, and that it still exists among us. Looked at from this point of view, the Red Cross is a great medicine-lodge.

It was not much easier to become a "medicine-man" in those days than it is now. The usual method was to spend at least a year with a preceptor, paying him well for his instruction. There was much to be learned and remembered, for these preceptors all varied in their bewildering practices, and it was customary to study under more than one. As with the modern doctor, even after graduation the life of the medicine-men was not one of pampered ease. He was compelled to respond to every call, night or day; although the Pueblos permitted an exception to the rule, if the unwilling physician could catch the messenger within a given distance and kick him. How many of us wish we had the same privilege.

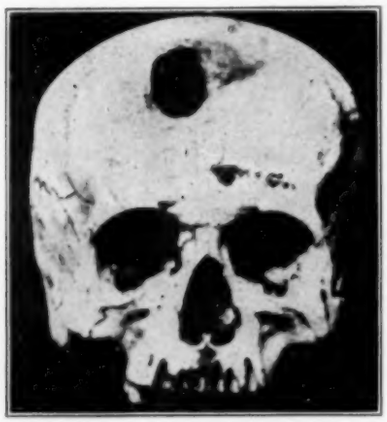

Fig. 3.—Large antemortem trephine opening (U. S. Ethnological Reports).

If the patient died, the doctor also ran the risk of death, at the hands of the relatives; and, at the very least, a number of failures to cure led to a loss of reputation and final dismissal from the profession. There was, however, a saving clause, at least among the Pueblos, for when the medicine-man's power began to wane he could rejuvenate it by rubbing his back against a certain sacred stone. The location of one of these stones is still known. The fees were of good size and paid promptly, often in advance. They consisted, not unlike those of a country doctor, of such things as blankets, horses, skins, weapons and various other personal effects. It should be emphasized, however, that to the credit of the profession much charity work was done then, just as it is now.

Curiously enough, there exists throughout the world a marked similarity in primitive medicine which suggests, perhaps, a common origin of the various races. In accordance with this, the methods of treatment were often identical among the prehistoric peoples of North, South and Central America, including the Indians, the Pueblos, the Aztecs and the Incas. The old Spaniards were in a position to observe these things and should have been able to tell us much about them; but unfortunately those aggressive pioneers were more interested in killing than in curing, so that their descriptions are unsatisfactory and meager. Enough has been handed down, however, to make it clear that considerable crude but efficient surgery was practiced, some of it being done in hospitals, at least in Mexico.

PRIMITIVE AMERICAN SURGERY

Let us consider this primitive American surgery more in detail:

Trephining.—As is well known, this is one of the very oldest surgical operations, and was extensively practiced by prehistoric peoples everywhere. It is probable that it was done not only for therapeutic purposes, but for other reasons as well; for instance, to let out evil spirits, to obtain amulets for decorative and other uses, or merely as a religious rite. The wearing of amulets made from sections of skulls was a common custom among the earlier inhabitants of the world. They were mostly obtained postmortem, but some were evidently removed from living captives, possibly with the idea that they were more potent as talismans against disease, or that they conferred on the wearer the physical or mental powers of the original owner.[2] But there can be no question that much trephining was also done for therapeutic purposes — for fracture, epilepsy, insanity, convulsions, headaches, etc.— as it is among various primitive races today.

According to archeologists, trephining was done far more frequently in Peru and Bolivia than in any other parts of the Western Hemisphere. Among 12,000 skulls from Bolivia, for example, 5 per cent. had undergone this operation, and in Peru the percentage was not much less, showing that the procedure was much more common then than now. Less is known about trephining in the United States, although occasional skulls with the characteristic openings have been found in the tumuli of the mound builders. It was more frequent, however, in Mexico and Central America.

Although many of the operations were done postmortem, others were antemortem, as is shown by the growth of bone around the edges of the openings. It may be inferred that some of the patients died during the operation, the button having been outlined but not removed. We can well imagine that a "death on the table" must have been accompanied with the same bitter regret and disappointment as it is now.

We are justified in believing that these surgical interventions were frequently for therapeutic purposes, because fractures are often found in connection with them; and even when no fracture can be seen, it is not unreasonable to suppose that a puncture of the skull, such as must have been frequent from the spiked war clubs then in use, may have existed and been removed by the operation. And, in addition, the fact that the openings were sometimes at a distance from the break in the bone might well mean that the principle of decompression was recognized — perhaps learned from experience in trephining for headaches, epilepsy, insanity, etc. In fact, if we do not regard these operations as deliberate decompressions, they would seem to be purposeless.

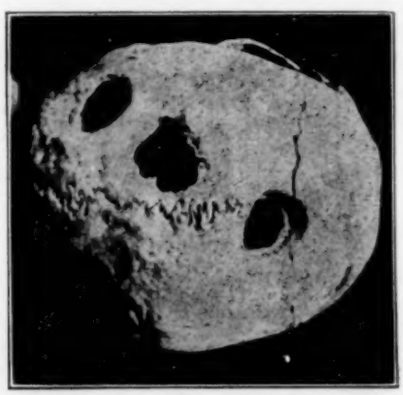

Fig. 4.—Multiple antemortem trephine openings (U. S. Ethnological Reports).

In the Smithsonian collection is the skull of a Peruvian mummy on which the dried soft parts are still

2. Even in the materia medica of more modern times, powdered human skull, especially the wormian bone (known as the os epilepticus) was used as a remedy for epilepsy.

in place. A trephining has been done at the seat of a fracture in the left temporal region, the interesting point being that the face is strongly drawn to one side, apparently the result of paralysis — a most uncanny phenomenon, to say the least (Fig. 1).

Most of the trephining operations in America do not seem to have been done very skilfully. They were crude jobs with crude tools that often slipped during the laborious process, as shown by scratches on the adjacent parts of the skull.

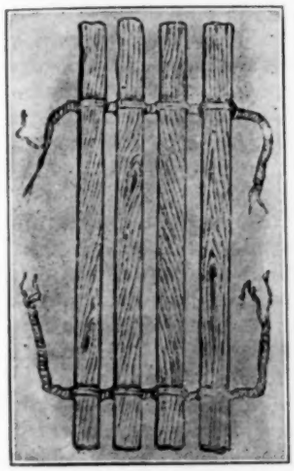

Fig. 5.—Splint made of sticks held together by strips of rawhide (Medical and Surgical Reporter, 1879, 2).

The shape of the opening was usually square or oblong, although sometimes round or oval. The square opening (Fig. 2) was peculiar to South America. It was made by cutting four rectangular intersecting grooves, almost but not quite through the bone, and then prying out the loosened piece of skull. The round openings (Figs. 3 and 4) were produced by gradual scraping, as shown by the characteristics of uncompleted operations.

From the nature of the grooves and the lines on their sides, it is probable that they were cut with a stone instrument, like a spear head, set in a handle and possessing a rough and rather blunt point—a kind of single-toothed, stone saw, as it were, by means of which the bone was slowly worn away by a to-and-fro motion aided by strong pressure. It is likely that the round holes were scraped out with sharp flakes of flint or obsidian, as is still done by certain more or less uncivilized tribes in various countries.

For a number of reasons, it is supposed that the patient's head was held between the knees of the operator, who laid open the scalp with a crucial incision and then sawed, scraped and pried away at the unfortunate victim's calvarium, with many slips of his crude instrument, until an opening was made. The time required, as established by experiment, must have been at last an hour and often much longer.

It may have been that some sort of anesthetic was employed, such as was used by the Pueblo Indians; but if not, what a nightmare of an experience it must have been for the patient, to say nothing of the nervous strain on the surgeon; although, when one considers the matter calmly, it could not have been much worse than the torture occasionally inflicted on us by our dentists. After all, much depends on the point of view.

It should be mentioned that trephining is still practiced in the same primitive manner by native medicinemen in the mountains of Peru, although they now employ pocket knives, chisels, etc., instead of instruments of stone. The operation is generally done for fracture, and is surrounded by great secrecy and certain mystic rites. It is said to be quite successful.

Fractures.—In the treatment of broken bones, the results were often surprisingly good. It was customary to set them, more or less skilfully, by pulling and manipulation; but permanent extension was not often, if ever, employed. Splints of various kinds were in universal use. They frequently were made of bark, the natural curves of which facilitated adjustment to the limb, especially after soaking in hot water and cutting away portions to accommodate bony prominences about the joints. Grass, scrapings from tanned hides, and other soft substances were used for padding. Occasionally the splint was filled with moist clay, which enclosed the limb somewhat like a plaster cast, and must have been both comfortable and effective. A window was always left over the site of a compound fracture to permit of attention to the wound.

Other sorts of splints were made from sticks or pliable branches, such as green willows, held together by strips of bark or leather (Fig. 5). The Cliff Dwellers of the Southwest, who from their mode of life must have broken their bones often, knew how to manufacture splints that scarcely could be improved on. Specimens exhibited in the Museum of the State Historical and Natural History Society, Denver, are beautifully made from polished wood and correctly curved to fit the limbs for which they were intended, the edges being nicely rounded to prevent injury to the skin (Fig. 6). Similar splints were employed by the Aztecs.

Often the splints were removed and the limb massaged, a practice that gives good results and deserves more attention than is given to it by modern surgeons.

In the treatment of fractures, the Hopi Indians employ splinters of trees which have been struck by lightning; not, however, as splints, but merely as fetishes. For some reason or other, they believe that those who have themselves received a lightning stroke are possessed of special skill in the care of broken bones — rather a severe requirement for a specialist in fractures, one would think.

In the Field Museum, Chicago, is exhibited an excellent pair of well padded crutches from the cliff dwellings of southern Utah (Fig. 7).

Dislocation.—The reduction of many of the simpler forms of dislocation was quite generally practiced, both by extension and by manipulation, although the methods were of course empiric and without scientific foundation.

Fig. 6.—Splints found in ancient cliff dwellings of southwestern Colorado (Museum of the State Historical and Natural History Society, Denver).

Treatment of Wounds.—The suturing of incised wounds was a common procedure; but it was considered so necessary that free suppuration should occur that thin pieces of bark were sometimes placed between the edges in order to check primary union. The sutures were obtained from animal tendons, human hair or plant fibers. The tendons were smoked hard and dry and were not absorbed, but were removed in about a week. It was customary to provide for ample drainage, which was often facilitated by the insertion of strips of bark or other material.

The frequent washing of all sorts of wounds, perhaps several times daily, was universally practiced, and may have had much to do with the rapid, not to say astounding, recoveries that are said frequently to have occurred. The irrigations were made with simple cold water or with decoction of certain things, such as basswood, willow, slippery elm, lichens and various herbs. In addition, the wounds were often packed with charcoal, ashes, piñon gum and other balsams, or sprinkled with these substances in the form of powder. Most of the balsams and decoctions probably had more or less of an antiseptic action, but it is questionable if this was sufficient to be of much value.

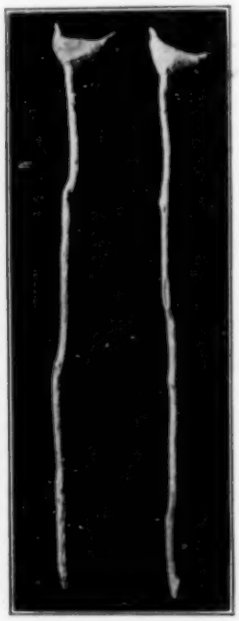

Fig. 7.—Crutches found in cliff dwelling of southern Utah (Field Museum, Chicago).

Saliva, both pure and mixed with other things, was very generally used; in fact, it was quite the proper thing for a physician to spit on a wound or into the materials used in its treatment. What consternation such a proceeding would produce in the operating room of a modern hospital! Nevertheless, we should not forget that animals always lick their injuries, and that lesions about the mouth heal even more readily than elsewhere. Another revolting custom, according to our point of view, was the sucking of pus out of wounds—a much valued method of treatment.

In Brazil, large open wounds of the extremities were sometimes handled in an extremely interesting manner. The part was wrapped in the inner bark of a tree, and suspended on a frame over a bed of glowing coals until nearly roasted. This method was painful, but is said to have been effective, primary union often resulting within a few days under the most unpromising circumstances.[3]

Although there is little evidence that actual laparotomies were ever performed, we at least know, from a description of an operation witnessed early in the seventeenth century by Bernabé Cobo, that they were sometimes "faked" for psychologic purposes. He says: "The sorcerers (medicine-men) did as if they would open him by the middle of the body with knives of crystalline stone, and they took out of his abdomen snakes, toads and other repulsive objects." However, when we remember with what dexterity the human body was opened for sacrificial purposes by the Aztecs, it should not be surprising if they sometimes performed operations on the internal organs.

Punctured Wounds.—Among the Pueblos, especially, no attempt was made primarily to remove foreign bodies, such as arrow heads; but they were gradually forced out by firm kneeding and pressure applied to the surrounding parts. It was sometimes necessary to continue this painful procedure for several days, although in the end it was generally successful; but if it failed, an operation was done, through a crucial incision. Irrigations with various decoctions were frequently practiced. These were sometimes squirted deep into the openings through a quill or a hollow bone by means of the mouth or a syringe made from a bladder. Some of these primitive surgeons used sticks wrapped with cotton to swab out punctured wounds, as part of the general program of cleanliness, which, although they lacked the Dakin's solution, nevertheless reminds one of the methods of Carrel. The cleaning of punctured wounds by sucking out the pus with the mouth was an ordinary and widely spread custom, which undoubtedly possessed merit in spite of its objectionable features.

Treatment by Suction.—This was done with the mouth, either directly or through a tube of stone, wood or bone (Fig. 8). In this way pus was removed from wounds, ulcers and abscesses, and the vascular circulation promoted, thus calling to mind the modern suction treatment advocated by Bier. Even the thought of using the mouth directly for such purposes is repulsive, but the danger to the physician was slight and the method was undoubtedly effective. After all, was it much worse than the many gruesome things done by medical students in the dissecting room? In Bolivia, at the present time, medicine-men have been seen to suck suppurating wounds and even syphilitic ulcers. Men who were thus willing to sacrifice themselves for the welfare of their patients should be respected and not ridiculed, just as we honor the young physician who heroically applies his mouth to a tracheotomy wound in a case of diphtheria.

Fig. 8.—*A*, peculiar wooden instrument with cupped end (depth not well shown) and with a hole on one side slanted upward, into which a hollow reed could be inserted; possibly used for cupping, by pressing the hollowed-out end against the skin, and sucking out the air through the reed. *B*, Cliff Dweller's stone pipe, also used for cupping and in the suction treatment of abscesses and suppurating wounds (Museum of State Historical and Natural History Society, Denver).

The imaginary foreign bodies supposed to cause many diseases were also removed by sucking, being first located by the supernatural vision of the medicine-man—a sort of roentgen-ray eye, as it were. The results were made more tangible by previously placing something in the mouth, such as a stone, thorn, worm or insect, and producing it at the proper psychologic moment.

Numerous ailments were held to be due to the presence of bile in the affected part. This was sucked out directly with the mouth or through a tube, the surgeon apparently expectorating bile frequently during the process, being enabled to do so by chewing a species of yellow root in preparation for the occasion.

3. That the North American Indians occasionally did quite good surgery is evidenced by an operation, witnessed by Cushing, on an inflamed and gangrenous foot. The trouble was supposed to be due to a mysterious maggot, and the procedure was carried out for the purpose of dislodging it. A crucial incision was made, the dead tissue excised, and the bone scraped. The wound was then repeatedly irrigated, packed with piñon gum, powdered and bandaged. The final result was satisfactory. Could a modern surgeon have done more?

Such procedures were of course nothing but blatant charlatanism, but they had a certain justification in the psychologic effect which they must have produced.

Cupping.—This was a common remedy. It was done by suction through a buffalo horn or a tube of wood or stone, or even by the mouth alone. Enough force could thus be exerted to cause much congestion, and an expert in the art could even raise a blister. Wet cupping was achieved by a preliminary scarification of the skin. In the Museum of the State Historical and Natural History Society, Denver, are some peculiar wooden instruments from the Colorado cliff-dwellings, labeled "use unknown," which might very well have been employed for cupping. They have a hole on one side into which a stem could be inserted to suck through, the body of the instrument being used as a handle to press it firmly against the skin (Fig. 8 *A*).

Scarification. — This was an almost universal practice, both for local troubles and those of a more general nature. It was often done with a flake of flint, although more elaborate instruments were in use, provided with many sharp points made of fish spines, flints, etc. A method employed in Brazil was to make a number of cuts in the skin through which was inserted a stone instrument like a spear head, which was moved about in the subcutaneous tissues — a mode of treatment that could not have been popular among primitive patients.

Cauterization. — This was much used. It was accomplished with a coal of fire, a hot stone, or by burning a little ball of cotton or other inflammable substance on the cutaneous surface. Among other things, indolent wounds and ulcers were often stimulated by cauterization, and it was also employed as a counter irritant in various painful affections. A favorite method was to burn tobacco or some other material in a tube made of stone (Fig. 8 *B*), and then blow the hot smoke through the tube on the area to be treated, decided virtues being attributed to the kind of smoke employed.

Phlebotomy.—This was extensively used in the treatment of local inflammation as well as many general diseases, being considered almost as much of a cure-all as it was with our medical forefathers. The vein selected was generally in the leg or arm, but occasionally in the neck or temporal region. The instrument employed in opening the vessel was made from a sharp flake of flint or obsidian, a thorn, a fish spine, or a tooth of some sort set in a handle. It was driven with a quick stroke into the vein. In Brazil, a little arrow, made for the purpose, was shot into the vein by means of a diminutive bow, thus coming as near to a "shotgun prescription" as was possible under the circumstances.

Inflammations.—These were treated commonly by poultices made from plants, leaves or barks (slippery elm, etc.), by cupping, and by counterirritants, such as the cautery. When an abscess resulted, incision was often resorted to, and the contents were aspirated with the mouth, directly or through a tube.

Amputation.—Although not extensively practiced, amputation was undoubtedly done at times, the bleeding being checked, perhaps, by the application of hot stones, as has been observed among the Indians. An image on an ancient vase found in Peru distinctly shows the stump of a leg due to an amputation.

Fig. 9.—Corset made of bark, with eyelets and cord for lacing it around the body; possibly used for some orthopedic purpose (Museum of State Historical and Natural History Society, Denver).

Hemorrhage. — The use of the tourniquet was undoubtedly understood by some, but the more common method of checking bleeding was by the actual cautery (a heated stone) or by local pressure aided often by such coagulants as spiderwebs and the fine fibers of plants.

Hernia.—Many medicine-men knew how to hold a rupture in place quite skilfully with various forms of pads and bandages; but the most remarkable procedure was that resorted to by the Pueblos, who treated umbilical hernia by placing on it a number of large black ants, the bites of which were supposed to have a curative effect. It would be interesting to know the origin of such an astonishing idea.

Pterygium. — Operations for pterygium were done in both North and South America, the growth being more or less skilfully removed with sharp stone knives. It was probably this operation that gave rise to the erroneous idea that cataracts were removed by these ancient ophthalmologists.

Artificial Skull Deformities.—The production of these may be considered as a sort of orthopedic surgery[4] extensively practiced by various North Amer-

4. The Museum of the State Historical and Natural History Society of Denver possesses an interesting appliance of bark made to fit the torso and provided with eyelets as though to lace it together in front (Fig. 9). It closely resembles the modern orthopedic corsets used in the treatment of lesions of the spine, and may have been used by the Cliff Dwellers for this purpose or for fracture of the ribs.

ican Indians, as well as those of Mexico and Peru. Sometimes a board was bound against the forehead of an infant and kept there during early growth, resulting in a hideous flatness of the front of the cranium (Flathead Indians). Other tribes, such as the Vancouvers, Incas and Aztecs, applied pads and tight bandages to the head in such ways as to render the skull conical, enormously elongated, or deformed in other monstrous ways. Although producing an outward semblance of idiocy, these peculiarities of form did not seem in any way to influence the mentality. Flattening of the occipital region, so commonly observed in collections of prehistoric skulls, was probably more or less accidental and due to pressure of the infants' skulls against the boards on which they were habitually strapped and carried.

Anesthetics.—Although it cannot be questioned that some of our primitive peoples possessed more or less reliable methods of anesthesia, it is hardly probable that these were very generally known or employed. For instance, the Zunis and some other tribes used for the purpose a substance obtained from the jimson weed (*Datura meteloides*), containing stramonium. It was administered in sufficient amount to produce indifference to pain or even complete unconsciousness, and in this condition abscesses were opened, fractures set, dislocations reduced, and other surgical procedures accomplished. In spite of heroic dosage, no serious harm seemed to result. It is quite possible that this and similar methods were also in use among the Aztecs and Incas, who were so closely related in many ways to the Pueblos.

In this connection should not be overlooked the strong hypnotic influence undoubtedly exercised by the medicine-men, with their bizarre make-ups, weird incantations, and fantastic antics, which were well calculated to make a profound impression on their credulous patients.

Metropolitan Building.

Housing Conditions and War Workers.—The necessity for adequate and better housing conditions for men and women workers in the war industries in this country has arisen in an acute form, not only in towns and cities of considerable size where these industries are located, but also in localities where munitions plants, for instance, have been built remote from places of sufficient size to afford any possibility of housing the employees. It has been the experience of England since the beginning of the war that the usual agencies for providing housing for industrial workers have fallen down, in that greater returns on capital have been possible from other sorts of investment. After experimenting with various plans of encouraging the building of houses, including loans of increasing proportions of the capital required, the government has been compelled to assume completely the job of providing houses. At first, cottages or hutments of a more or less temporary nature, community cottages and barracks were constructed, but the experience has culminated in the planning of complete housing communities and the erection of permanent houses of a very good and substantial class, with wide streets, pleasant outlook, good sized gardens, and the conveniences and comforts of modern, healthful ways of living. A writer in the *Journal of the American Institute of Architects* has described the evolution of the British government housing problem during wartime, and while he feels that in this country the problem is not identical, and that the whole matter should be studied from a different point of view, yet he reluctantly concludes that "if English experience has any value at all for us in this matter, it seems clearly to point in the direction of the nation itself shouldering a burden which has become too heavy to be carried by employers and individual communities alone."

OBSTRUCTIVE STERILITY IN THE MALE

TREATMENT BY DIRECT VASO-EPIDIDYMOSTOMY *

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CHICAGO

Obstructive sterility in the male is easily diagnosed by microscopic examination of the semen. The semen shows a complete absence of spermatozoa. The only treatment in these cases is surgery. We must make an anastomosis around the obstruction to permit the passage of the sperm. The particular operation necessary to be performed depends on the location of the obstruction, thus:

1. If the obstruction is in the epididymis, the operation will be direct vaso-epididymostomy.
2. In the scrotal vas, resection of the obstruction and union of the vas, either end to end or lateral.
3. In the pelvic vas or ejaculatory duct, author's sac operation.
4. In the pelvic vas on one side and epididymis or scrotal vas on the other side, anastomosis of the vas on one side to the vas on the other side above the obstruction; crossed anastomosis.
5. There may be combinations of any of the foregoing.

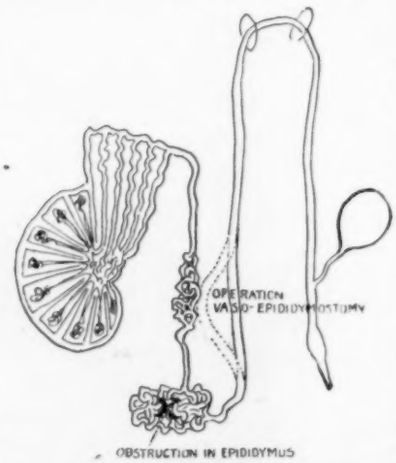

Fig. 1.—Schematic drawing of the sexual tract of the male; *x* marks an obstruction in the tail of the epididymis, and the operation necessary for relief, direct vaso-epididymostomy, is indicated on the dotted line.

Diagnosis of the point of obstruction (when in the epididymis) is made by inspection at the time of operation (Fig. 1). When the obstruction is in the vas, the diagnosis is made by injecting colored salt solution into the central end of the opened vas and noting its appearance or nonappearance in the urethra.

When the obstruction is found in the globus minor of the epididymis, the operation necessary to relieve this obstruction is an anastomosis between the epididymis tubule (Fig. 1) above the point of obstruction and the vas deferens below any obstruction that may be present in it. All the present operations (Martin's operation) designed to join the vas to the epididymis tubule are indirect; that is, after the epididymis capsule has been incised, a small portion of the protruding epididymis tubule is cut off, then the vas is split longitudinally, and the open incision in the vas is sewed to the epididymis capsule over the raw surface of the epididymis; hence there is a considerable distance that must be bridged by epithelium between the functional end of the epididymis tube and the vas. Unfortunately, this bridge often fails to develop, and consequently the operation is a failure.

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* Awarded silver medal, Scientific Exhibit, Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* From the Laboratory of Experimental Surgery, Northwestern University Medical School.

The two chief causes of failure are (1) the overgrowth of connective tissue, choking the epididymis tubule, and (2) the organizing of the blood clot that forms on the cut surface of the epididymis, whereby the epididymis tubule is closed. To circumvent these difficulties I devised an operation for direct anastomosis between the epididymis tubule and the lumen of the vas. I have called this operation direct vaso-epididymostomy. As it brings the epithelium of the vas into direct union with the epithelial lining of the epididymis tubule, the danger of hemorrhage is absolutely eliminated, and the danger of choking by connective tissue is practically eliminated.

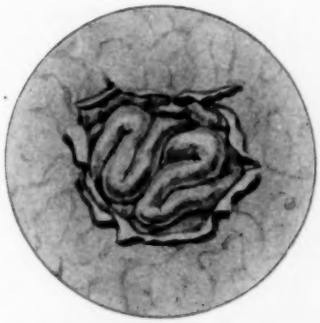

Fig. 2.—Capsule of the epididymis cut through and reflected, exposing the epididymis tubule characteristically coiled on itself.

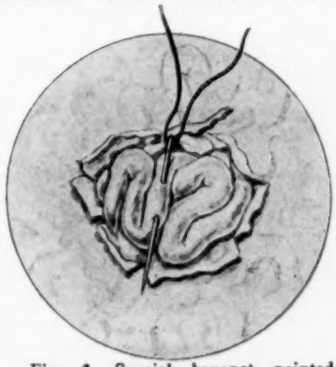

Fig. 3.—Special bayonet pointed sterility needle entering the tubule lumen, then passing along the lumen for a short distance, then out again. The needle is armed with 00000 silk.

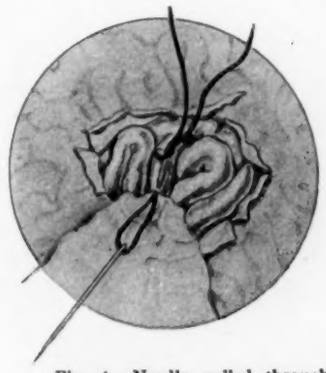

Fig. 4.—Needle pulled through and the threads now in the lumen of the epididymis tubule. Note the escape of the contents of the tubule. This suture is now drawn through, and its ends passed into the lumen of the vas. The little rounded mass where the suture enters the epididymis tube wall is petrolatum that has been stripped off from the thread.

TECHNIC OF DIRECT VASO-EPIDIDYMOSTOMY

An incision is made into the scrotum down to and into the tunica vaginalis testis. The epididymis is exposed, and the point of obstruction is noted. The lumen of the vas is now opened by a short longitudinal incision, and a colored fluid is injected into the central end of the vas. If the fluid appears in the urethra, we know positively that the vas is open from the point of incision to the urethra. Next, the epididymis capsule over the epididymis compartment immediately above the obstruction is incised carefully down to the tubules, great care being taken (1) that all the different layers of the capsule are removed from the epididymis tubule, and (2) that the epididymis tubule itself is not nicked or cut into at any point. The epididymis tubule will protrude through the opening thus made in the epididymis capsule (Fig. 2). A tubule is now selected whose direction is the same as the long axis of the body of the epididymis.

Fig. 5.—Low power photomicrograph of the epididymis tubule into whose lumen has been passed a suture of human hair. The two oval bodies are the cross-section of the hair.

A suture of 00000 silk mounted on a No. 19 bayonet pointed needle is now passed through the wall of the epididymis tubule (Fig. 3), then down the lumen of the tubule and out again through the wall of the epididymis tubule, from 2 to 4 mm. from its point of entrance (Figs. 3, 4 and 5).

In Figure 4 we see the needle drawn through, and the outpouring of the epididymal secretion. This secretion is aspirated into a small syringe, and then placed on a microscopic slide and examined for spermatozoa. The ends of this crown or epididymal stitch are now passed through the longitudinal incision into the vas, down the lumen of the vas, and out through the wall of the vas. When both ends of the crown suture have been inserted into their appropriate ends of the vas incision, the appearance is as shown in Figure 6.

Sutures of extraordinarily fine catgut, made especially for this purpose by Mr. Hollister, are now passed, one on each side of the longitudinal incision in the vas. These sutures (Fig. 7 *C* and *D*) includes both the wall and the epithelial lining of the vas in its grasp. These sutures are designed to hold the incision in the vas open. Sutures (Fig. 7 *A* and *B*) are now passed into the wall of the vas a short distance from each end of the incision. These sutures include only the wall of the vas, and do not enter the lumen of the vas at all. They are designed to fix the vas to the epididymis and carry the weight of the testicle, and are so spaced on the length of the vas that when they are tied down they leave the intervening vas slack, so as to remove all tension from the union between the epididymis tubule and the vas.

When the four sustaining sutures are passed and the vas is turned over, the appearance is as shown in Figure 7. The central or upper end of the crown stitch is now threaded on a long Hagedorn needle and after the testicle has been replaced into the scrotum, this needle transfixes the scrotum from inside out, bringing the crown thread with it. In from one to two weeks, when a necrosis of the wall of the epididymis tubule which has been in the grasp of the suture has taken place, this suture can be removed by slow gradual traction.

In order to visualize the amount of material that passes through one of these anastomoses, the spermatozoa were recovered from the entire amount of semen ejaculated. This has been done from different individuals and from the same individual at different times. The amount varies with the vigor and passion of the intercourse. A large lumen is not necessary. The size of the lumen obtained by this operation is shown in Figure 8, a specimen on which the operation of direct vaso-epididymostomy had been performed two months before. The vas has been torn from the epididymis, and in the center of the vas can be seen the little opening that connected the vas lumen with the epididymis tubule.

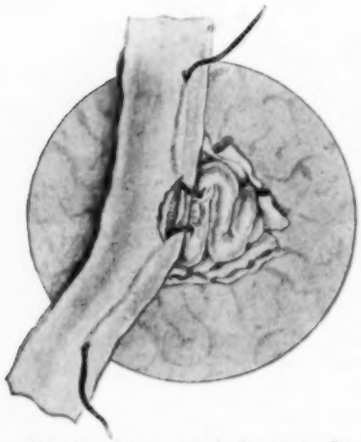

Fig. 6.—Crown stitch in place, its two ends entering the longitudinal slit in the vas. These ends enter the lumen of the vas and then transfix the wall of the vas. If traction is made on the ends of this thread, it will draw the epididymis tubule into the cut in the side of the vas.

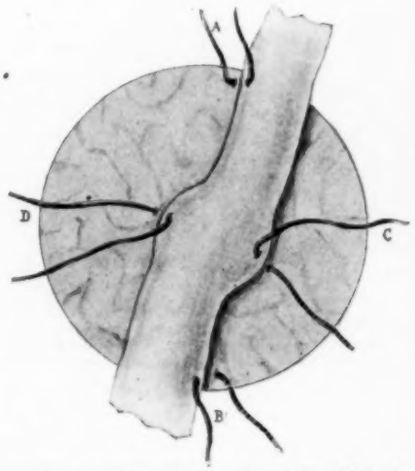

Fig. 7.—Two stitches, *A* and *B*, which fix the vas to the capsule of the epididymis and carry the weight of the testicle. They are so placed that the vas between them is slightly flaccid. The two stitches *D* and *C* hold open the longitudinal slit in the vas.

Fig. 8.—Vas on which the operation of direct vaso-epididymostomy had been performed two months previously, torn from the epididymis and viewed from the epididymal side. The lumen shows as a small black dot in the center of the picture.

The anastomosis made by the operation is illustrated in Figures 9, 10 and 11.

Fig. 9.—Injected vas and injection in first compartment of epididymis tubule, demonstrating that the anastomosis is patent. The crown stitch in this instance was of silver wire.

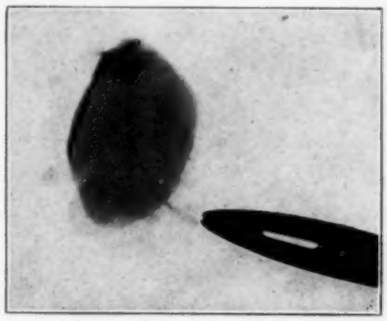

Fig. 10.—Another specimen, similar to Figure 9.

Fig. 11.—Exact location and size of the connecting lumen between the vas and the epididymis tubule. The crown stitch is of silk, and consequently it does not show.

Usually when we incise the vas we find that the lumen is empty. Occasionally we find that it is filled with a thick creamy material which, on examination, is found to be composed practically entirely of spermatozoa. In three instances in which the vas had been occluded for many years, the vas was filled with this creamy material; on examination it was found to contain no spermatozoa whatsoever, but simply round amorphous material which had the microscopic appearance of fat globules. They do not take the fat stain, however, and their exact chemical composition is not certain. In all of the cases in which this material has been found, the vas was obstructed in the pelvis. I consider this material diagnostic of a vas that has been obstructed at least ten years.

After this technic was fully developed, I performed direct vaso-epididymostomy on one side only of eleven dogs. These animals were killed two months after the operation. The vas of the side not operated on was stripped, and spermatozoa were demonstrated in each instance. The vas coming from the epididymis operated on was similarly stripped, and spermatozoa were demonstrated in ten of the eleven operations. The patency of the anastomosis is shown by the epididymograms (Figs. 9, 10 and 11).

REPORT OF CASE

A patient with bilateral epididymitis showed slight thickenings in the globus minor of both epididymides, and absence of spermatozoa from the semen. The left testicle was explored under local anesthesia, and an obstruction demonstrated in the globus minor. A direct vaso-epididymostomy, with silk for the crown stitch, was performed, with the result that spermatozoa are now present in the semen.

7 West Madison Street.

War Amenorrhea.—The *Norsk Magazin for Lægevidenskaben* reviews collectively a number of articles with this title which have been published in different parts of Germany, Austria and the parts of France occupied by the German troops. All comment on the great prevalence of amenorrhea during the last year or two, in otherwise apparently healthy nonpregnant women.

Military Medicine and Surgery

MEDICAL EDUCATION, MEDICAL INTERNS AND THE WAR

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[At the Conference on Medical Education last week, the chairman of the Council on Medical Education of the American Medical Association, Dr. H. D. Arnold of Boston, now on active service in the Surgeon-General's Office, at Washington, devoted the major portion of his chairman's address to this subject. The following is an excerpt from this address. In the introduction Dr. Arnold stated that while some of the statements he would make could be regarded as having official authority, at the same time he wished it understood that he was expressing his personal views.—ED.]

NO LESSENING OF EDUCATIONAL REQUIREMENTS

I wish to emphasize again one point briefly mentioned in my opening remarks, namely, the importance of not lowering the standards of medical education during this period of war. This does not preclude the readjustment or rearrangement of courses, or the omission of nonessential details. But it does mean that the modern thorough training, with its broad scientific basis, must be fully maintained, if we are to make of our medical students officers who are competent to give proper care to our soldiers. We must not relax the thoroughness or the essential content of that training. The fact that the number of teachers is reduced is merely a reason for those who are left to work longer and harder. It is not a justification for weakening the instruction given.

The spirit of this war time — the cry for efficiency on the part of every individual of this nation — must not go unheeded by the medical teacher. No medical teacher is doing his full duty who is content merely to continue his teaching as it existed before the war. The newer knowledge and methods developed in this war must be taught; those aspects of every subject which will be useful for Army purposes must be emphasized; and above all, the teacher should make sure that the student masters the real essentials of his subject. In our teaching there has been a tendency to place undue emphasis on that which is new, or on that in which the teacher happens to be personally interested; and too little attention has been paid to the routine drill in fundamentals — too little thought to determine what is really essential for every medical student to know in a given subject. Critical self study should lead many teachers to drop many items of instruction which their confrères — and their students too — recognize as personal fads. The voluntary conforming to uniform, simple methods that are agreed to be efficient in Army service would be a very important step toward the more efficient training of medical officers.

MEDICAL STUDENTS AS ENLISTED MEN

Owing to the provisions of the Selective Service Regulations, it has come about that nearly all our medical students are enlisted men in the reserve corps of the Army or Navy. Since, by agreement, the regulations for those in the reserve corps of the Navy will be essentially the same as for those in the reserve corps of the Army, we may, for the sake of simplicity, speak as if all medical students were enrolled in the Army. Medical schools have in reality become Army training schools.

We should keep one point clear in our minds — and make it clear to the students. Medical students are not exempted from the draft law. They are actually in military service in accordance with the regulations under that law. They are too apt to remember simply that they are in Class V — the class that is exempt from induction into service under the draft — but to forget the wording of the regulation that gave them this classification, that "the registrant shall be placed in Class V on the ground that he is in the military service of the United States. There is no other ground on which such persons (as such) may be placed in a deferred classification."

As an enlisted man in the reserve corps of the Medical Department, a medical student is subject to call to active duty at any moment, at the discretion of the Surgeon-General. If he is left on inactive duty, it must be either because his services are not needed, or because he is to remain on inactive duty for special Army purposes. Every one of these men could be used advantageously now in the hospital corps of the Army; consequently the sole reason for leaving them on inactive duty is that they may become better trained for medical service in the Army later. Provided they show sufficient aptitude and application, this training may be continued until they are qualified to become medical officers in the Army; but it is not the inherent privilege of a medical student, as such, to continue his studies to this extent.

It follows logically that the student must have the preliminary education and training that fit him to pursue his medical studies successfully; that his course of study must be sufficiently thorough and complete to prepare him to become a satisfactory medical officer, and that he must show a capacity and application that enable him to keep pace with the progress of his class. The moment it is clear, from his failure to progress with his class or his failure to graduate, that he will not make a satisfactory medical officer, it becomes the duty of the Surgeon-General to call him to active duty in the enlisted service of the Medical Department. Here lies an incentive for the medical student to do his best work — none the less effective because it is an artificial spur.

It is the intention of the Surgeon-General—because it is for the best interests of the Army — to allow medical students one year of training after receiving the degree of M.D. This time must be spent either in gaining practical experience, as an intern, in the care of the sick; or in such advanced scientific study, in hospital or medical school, as will fit him for special scientific medical work in the Army. Students will not only be permitted to take this year of training after graduation—unless some unforeseen contingency demands their services in the ranks — but they are strongly urged to take such service if it can possibly be arranged.

The Surgeon-General feels a moral obligation to the men who have been drafted into active service, and are fighting for our country, to administer the regulations in regard to medical students strictly and conscientiously. The cooperation of the medical school authorities is expected in the same spirit. This will mean in some instances a more strict enforcement of requirements and standards than has hitherto obtained. It means the prompt removal of all entrance condi-

tions of those already enrolled as students; the strict enforcement of entrance requirements; a uniform standard of marking, and a fair test of the student's qualifications for promotion, and uniform usage on the question of conditions as affecting admission and promotion.

The problem of conditions is a most important one, on which the advice of the medical educators is earnestly sought. Let us state it clearly once more: We have no moral right to continue one of these enlisted men on inactive duty after it is clear, from failure to pass his examinations, that he will not make an efficient medical officer. We have no right to allow the course of training to be unnecessarily prolonged. We certainly must prevent the "slackers" from delaying their entrance into active service. And yet we may be hard pressed for trained medical men, if the war lasts much longer, and we should not hastily deprive partially trained medical students of the chance to complete their training. My personal opinion is that the practical solution of this question would be to allow backward students, as a maximum, one term, or semester, extra in the whole medical course.

TEACHING THROUGHOUT THE YEAR

It seems to me that we have no moral right, in deference to the drafted men in the fighting line, to give medical students the usual summer vacation of three or four months. There is the added consideration that, if this war should last two or more years longer, we are sure to be hard pressed for medical officers for our own Army and for our allies. It may be necessary to speed up the training of our medical students. Now is the time to make plans for this, for it can be accomplished now without lowering the standards of medical training.

It would be possible to give three terms in twelve months, instead of two terms as at present, without any material detriment to the course of instruction. These terms should begin approximately on October 1, February 1 and June 1.

During the past year, 80 per cent. of the medical schools reported a school year of from thirty-three to thirty-six weeks. This is supposed to be "actual work exclusive of holidays," but this requirement is not generally fully complied with.

The plan of three terms in twelve months could be arranged on a basis of sixteen weeks to each term, with an allowance of four weeks for vacation distributed through the year — not an unreasonable requirement for enlisted soldiers. One week in each term may be allowed for examinations, leaving fifteen weeks for actual teaching—or thirty weeks of actual teaching for the school year. This is not a radical departure from actual present usage, and should be accepted, as a war measure, in view of the great advantages to be gained.

If this plan were adopted now, the present first class would be ready for service twelve months earlier than under the present plan, the second class eight months earlier, and the third class four months earlier. The senior class would not be affected.

I know that the question of summer sessions of the medical schools was discussed last spring at a meeting of the deans called by the General Medical Board of the Advisory Commission of the Council of National Defense, and that the decision was adverse. But conditions have changed since then. It seems more probable that this war may be prolonged; it is more evident that we must put larger armies in the field; the need of medical officers and of physicians for civilian practice, both for ourselves and for our allies, during and immediately after the war, is more evident than it was then; and, finally, the new draft regulations introduce a factor that could not then be taken into account.

The desirability of the general idea of speeding up medical education, without sacrifice of its quality, has the approval of the Surgeon-General. An expression of opinion from the medical educators here assembled as to its practicability and desirability would be welcomed. My own opinion is that it should be recommended to medical schools now, but should not be required of all well recognized schools for the coming summer, but should be required thereafter. In some schools it may not be practicable to inaugurate this system for the coming summer, on such short notice. In others, the next summer term would better be allowed for students to clean up conditions and back work, so as to make a fair start in the fall.

The objection that the letter of the law in some states could not be met by such a plan does not seem to be a serious one. A state licensing board which felt obliged to enforce such a regulation ought not to find it difficult to get permission from the legislature to accept this plan temporarily, as a war measure.

REORGANIZATION OF CURRICULUM

In one respect the curriculum should be changed, so as to make it possible to have a graded intern service in the hospitals. Twelve months is considered as long a period as can regularly be allowed for intern service after graduation. If all medical students graduated at the same time, entered at once into intern service, and entered active service in the Army one year later, the system of graded interns in the hospitals would be impossible. The Surgeon-General did not feel warranted in extending the period of internship in general to a year and a half, as suggested by some institutions. The following compromise plan has been approved by the Surgeon-General, by which the hospitals can secure a graded service for interns, if the appointments are made to begin July 1, November 1 and March 1. These dates are suggested for the purpose of allowing a month—or part of a month—of vacation between graduation and the beginning of intern service.

The service beginning July 1 will naturally be supplied from the graduates in June. A certain number of those graduating in June—not to exceed one third of such graduates—may be allowed to begin a service of one year as intern as late as November 1, provided that the time between graduation and the beginning of the recognized internship, with the exception of one month allowed for vacation, is spent in a way that will improve the training of the graduate for Army purposes. A supply of candidates for internships beginning March 1 will come in part from those who graduate in February, but the remaining positions must be filled by senior medical students.

This plan will have the approval of the Council on Medical Education, and should have the approval of other authoritative bodies such as state boards, under the following conditions:

1. The curriculum of the medical school should be so arranged that the last semester consists entirely of clinical work.

2. The work of these interns should be of such a character that it may be accepted by the medical schools

as equivalent to the clinical work in the school during the last semester.

3. The medical school must agree to accept such clinical work, if satisfactorily performed, as counting toward the degree.

4. This privilege should be limited to students whose school record up to that time places them in the upper third of their class.

QUALITY OF INTERN SERVICE

The Surgeon-General must insist that the opportunities afforded interns shall be such that they will receive a satisfactory experience and training in preparation for their professional duties as medical officers in the Army. Work exclusively as clinical clerks will not be acceptable. The mere care of patients without careful study of the cases, including laboratory investigations, will not be acceptable. The opportunity to take charge of patients without adequate supervision and training by the visiting staff will not be acceptable.

It is realized that many internships, as now arranged, will not meet these requirements. For the moment, internships must be approved that do not fully meet these conditions; otherwise the organization of important hospitals would be disrupted, and the proper care of the patients would be impossible. But, if a hospital does not adjust itself to these requirements within a reasonable time, approval of the institution as an authorized place for intern service will be withdrawn, and the allotment of interns will be cut off. The experience gained in these hospitals should be at least as good as the graduate would get at an Army base hospital. We are not justified in leaving him as an intern in a civilian hospital, when he may be given a better training in an Army hospital.

MEDICAL TEACHERS

The problem of the teaching force in our medical schools has become a serious one, because so many have already volunteered for active military service, and the action of the draft threatens to remove other teachers who are regarded as essential to the satisfactory continuance of the present methods of instruction.

While we cannot but admire the patriotic response to the call of duty of those teachers who have entered active military service, we must not forget that many who remain are actuated by fully as patriotic motives, and are often performing a more difficult duty in remaining for the purpose of serving the country by continuing their teaching.

The medical teachers of draft age play a most important part in the methods of medical education adopted in recent years. The induction of these men into military service would seriously impair the efficiency of medical teaching, unless they could be at once replaced by equally satisfactory teachers. As far as is possible, such men should be replaced by others who are above the draft age; and the schools should conscientiously endeavor to meet the situation in this way as far as they can. But it is recognized that there are not enough competent men above draft age available for this purpose, and that this plan offers only a partial solution of the difficulty.

Medical teachers, as such, are not granted any privileges under the Selective Service Regulations; nor can special privileges be given to them fairly. The spirit of the draft law requires that they enter military service, when their turns come according to the draft regulations. Since very few of them are likely to be reached by the draft during the present school year, the immediate danger to the schools is not so great as has been generally thought to be the case.

Since the requirements of the draft will be met from Class I for a long time to come, we may for the present disregard those teachers who have a deferred classification. The following arrangements apply to those who are placed in Class I.

Those who have the degree of M.D. should apply for admission into the Medical Reserve Corps, if they have not already done so. They should at once accept their commissions, when offered, so that certificates may be issued under Section 151 (c), S. S. R., which will authorize their local boards to place them in Class V on the ground that they are in the military service. If the services of such a teacher are essential for the efficient instruction in the department of the medical school to which he belongs, the dean of the school should make this fact known to the Surgeon-General. This reserve officer will then be held on the inactive list, at least until the end of the present school year. If necessary, he can be kept on the inactive list for a reasonable period beyond this time, until a substitute can be found. It is not the policy of the Surgeon-General, however, to create a class of medical teachers who will be excused from active duty throughout the war.

Medical teachers who are not graduates in medicine, and are essential to the school, can be provided for until the end of the present school year, and if necessary until their places can be filled by other suitable teachers. Such teachers may be referred to the Surgeon-General for consideration by the dean of the school, and will be dealt with as the individual case warrants. Action in such cases should not be requested, however, until it is clear that the teacher in question is liable to be drafted in the near future, and the facts in regard to such liability should be clearly set forth.

It is becomnig more and more evident that the services of medical teachers in the various branches of medicine will be needed in the Army as well as in the medical schools, and that the present supply of such trained teachers is not sufficient to meet this double demand. This is especially true in the laboratory subjects. It will, therefore, be necessary to provide for the training of more teachers. For this purpose, the schools should encourage those students who are interested in the scientific branches of medicine, or who show an aptitude for such work, to accept positions in the school or hospital laboratories instead of positions as clinical interns for one year after graduation. At the end of the intern year a sufficient number of clinical interns and laboratory assistants may be retained on inactive duty to replace the medical teachers who will be called to active service in the Army. These men will in turn be called to active service as soon as their places can be satisfactorily filled by the promotion of the next set of interns and assistants; and by this system we can provide a constant supply of highly trained men for the Army both in clinical and laboratory subjects. We shall at the same time provide teachers for the medical schools.

COMBINATION OF MEDICAL TEACHERS IN MEDICAL CENTERS

It seems quite possible to me that even these plans may not provide enough teachers for all departments

of medical instruction in the schools. The scarcity of teachers is more likely to be felt in the laboratory subjects. A possible solution of this difficulty may be found in the combination of the teaching force of two or more schools in a medical center for the joint instruction of medical students. The schools should consider the feasibility of such combinations, and should be prepared to make such arrangements if they become necessary.

GREATER UNIFORMITY OF CURRICULUM DESIRABLE

In the past we have discussed the desirability of greater uniformity in the schedule of the curriculum in the several medical schools with a view to facilitating the transfer of students, or of encouraging the migration of students. In looking ahead to the possible drain on the medical profession, and more especially on the medical teachers, it seems at least possible that some of the schools, especially the smaller ones or those located in the smaller communities, may be obliged to discontinue teaching for a time. Should such a contingency arise, the possibility of transferring the students to other schools, without the loss of standing or of time, should be provided for. A sufficient uniformity of schedule, year by year, to permit such transfer seems a wise provision to make at this time, and it is recommended that the schools give this matter serious consideration. Attention is called to the probability that during the war the summer vacations will no longer be available for readjustment in this respect, as has been the case in the past.

PREMEDICAL STUDENTS

By a ruling of the Provost Marshal General, it is not possible to include premedical students under the provisions of the regulations for medical students. Up to the present time this ruling has not been a serious matter, because comparatively few of these students were 21 years of age, June 5, 1917, and they are in consequence not subject to the draft law.

Even if the law is changed to include men as soon as they attain the age of 21, these students will in all probabiliity not be reached by the draft before they complete their premedical course of training. If the medical schools will adopt the plan of accepting a first-year class on the first of next June, these students could then be matriculated and allowed to enlist in the Medical Enlisted Reserve Corps. Since they began their preparation for the study of medicine two years before this, such action could hardly be regarded fairly as an evasion of the spirit of the draft regulations. Some such arrangement is necessary, or else the supply of medical students will be cut off.

If the colleges will also adopt the plan of a summer term for the premedical students, they will enable subsequent classes to enter on their medical course before they attain the age of 21, and so the problem of the premedical students and of a supply of medical students will be settled.

Tetanus after Preventive Injection of Serum.—A. Lumière has encountered fifty-four cases of tetanus occurring in men who had been given preventive injections of antitetanus serum, and tabulates these with minute detail under eight headings in the *Annales Pasteur*. He urges the necessity for repeating the serotherapy before attempting any operation later, and relates that sodium persulphate seems to be more effectual in relieving established tetanus than magnesium sulphate, while it is only slightly toxic.

STOCK SODIUM SULPHITE SOLUTION FOR ENDO MEDIUM

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With the assistance of Mr. J. E. Jacob, I have shown that a 10 per cent. solution of crystalline sodium sulphite can be heated for twenty minutes at 15 pounds pressure with practically no change, and that the 10 per cent. sodium sulphite solution covered with a layer of liquid petrolatum about 1 cm. thick and sterilized in the autoclave can be kept at room temperature for three weeks and probably much longer with but very slight change.

Such a sterilized stock solution of sodium sulphite might render the preparation of Endo agar a somewhat simpler procedure in field hospitals and base hospitals. If the liquid petrolatum carried over into the agar with the pipet is considered a disturbing element, more than the amount of the sulphite to be used should be pipetted into a sterile vessel, and the necessary portion of this should be immediately transferred to the agar with a second pipet.

The results of the titrations of the sulphite solution, before and after sterilization and after standing for various intervals of time are appended. The titrations were all done by Mr. Jacob.

TITRATIONS OF SODIUM SULPHITE SOLUTIONS

EXPERIMENT 1.—Fifteen gm. of crystalline sodium sulphite were added to 150 c.c. of distilled water in an Erlenmeyer flask, and the latter was immediately covered with a layer of liquid petrolatum about 1 cm. thick. After the sodium sulphite had gone into solution, 5 c.c. were removed for titration. The flask was then heated in the autoclave for twenty minutes at 15 pounds pressure and allowed to cool, when a second series of titrations was made. After a second heating, further titrations were made.

TABLE 1.—TITRATIONS OF 5 C.C. AMOUNTS OF THE SOLUTION (EXPERIMENT 1)

	Tenth-Normal Iodin C.c.		Crystalline, Sodium Sulphite
Before sterilization	36.1	equivalent to	9.10 per cent.
After first sterilization	36.75	equivalent to	9.26 per cent.
After second sterilization	36.3	equivalent to	9.15 per cent.

Hence practically no change takes place in the sodium sulphite solution during sterilization.

EXPERIMENT 2.—Fifty gm. of sodium sulphite were dissolved in 500 c.c. of distilled water, and 200 c.c. of the solution were added to each of two 500 c.c. Erlenmeyer flasks. A layer of liquid petrolatum 1.2 cm. thick was poured on the surface of the fluid in one of the flasks. Both flasks were loosely corked, heated in the autoclave twenty minutes at 15 pounds pressure, and then allowed to stand at room temperature. Five c.c. of the solution were withdrawn for each titration. The solutions were prepared, Dec. 24, 1917, and titrated at once and on the dates noted in Table 2. The figures recorded represent an average of two or three titrations.

TABLE 2.—TITRATION AFTER STANDING

Date	With Petrolatum		Without Petrolatum	
	N/10 Iodin C.c.	$Na_2SO_3.7H_2O$ Per Cent.	N/10 Iodin C.c.	$Na_2SO_3.7H_2O$ Per Cent.
Dec. 24	33.3	8.39	33.3	8.39
Dec. 27	33.1	8.34	27.1	6.83
Dec. 31	32.7	8.24	13.7	3.45
Jan. 7	32.4	8.14	6.0	1.51
Jan. 14	32.5	8.16	....	....

It is seen that in the flask without petrolatum, more than half the sulphite disappeared in one week's time, and almost all of it in two weeks. The flasks with petrolatum showed only a very slight loss after standing for three weeks.

THE ETIOLOGY AND TREATMENT OF TRENCH FOOT *

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The usual classification of the disease known as "trench foot" is based entirely on a clinical picture. From this clinical picture also the attempt is made to deduce the etiology, and the nature of the most severe type of case is such as to seem to warrant the conclusion that the disease starts from the outside of the foot. Therefore the most common form of treatment is a purely local one.

We purpose to advance evidence which shows that the disease in all its forms starts from the interior; that the infections which often mark the course of the disease are but the natural secondary manifestations of the reaction of devitalized tissues to infective agents; and that therefore the treatment of the condition should be directed to the skin only so far as these secondary infections have resulted in surgical conditions.

We beg permission to present the line of reasoning that has led us to our conclusions. It will be evident that this reasoning is not based on known facts of physiology, in extenuation of which we point to the necessity in order to advance our present knowledge of supposing that some things we know are not true and that the rest need revision.

There is a disease of civil practice which bears a certain resemblance to trench foot. This disease is, or these diseases are, known as Raynaud's disease, intermittent claudication, erythromelalgia and thrombo-angiitis obliterans, perhaps best grouped under the generic name of the angiotrophoneuroses. Nothing is known of the etiology, much has been written, no treatment is accepted.

Some of the enthusiasts in the surgery of the blood vessels have claimed good results in this disease after performing an arteriovenous anastomosis of the femoral vessels. There is no known fact of physiology which would explain how the shifting of the blood stream from artery to vein — provided the operation really accomplishes such a result — could possibly influence the disease. Yet, when men insist on clinical results, it is often wise to consider that they may be attaining results, and that, in this instance, while their explanation does not conform to the teaching of physiology, the operation may do good in some way other than by influencing the course of the blood stream. If one assumes that the condition be due to a vasomotor spasm of the arterioles — not a new assumption — then sympathetic paralysis would overcome this spasm, and the operation of arteriovenous anastomosis would produce such paralysis because in the process of freeing the vessels for the anastomosis, the great sympathetic trunks, which run in the blood vessel sheaths, would be cut.

This line of reasoning — or guesswork — led us to attempt to discover if there is any clinical evidence of vasomotor disturbance in trench foot; and the astonishing results below appear. There is a marked increase of blood pressure in the leg in trench foot as compared with the arm.

Whether this increase in pressure is due to an excess of vasoconstrictor substance in the blood, or whether it is due to a loss of vasodilator substance, the result being the same, it would seem that increase of blood pressure reducing substance is indicated.

The opposite picture to peripheral vasoconstriction is seen in hyperthyroidism, as evidenced by the sweats, the sudden diarrheas, the flushings, perhaps also the tachycardia; therefore we have resorted to the administration of potassium iodid, which is known to stimulate the thyroid; thyroid extract is the first thought, but we had none at hand.

It may be asked why, when the edema and diapedesis of red cells comes from the capillary walls, we blame the arterioles rather than the capillaries. The reason is our finding of increased blood pressure and the spasmodic nature of the attacks of pain. Physiologists are not yet agreed as to the point in the vascular system at which the blood stream encounters the greatest resistance; but the majority opinion seems to be that it must be in the arterioles, because the blood passing the arterioles enters an area in which the total cross section is enormously increased; further, the arteriole is the only peripheral vascular structure that possesses a mechanism intrinsically capable of change. At least, no such mechanism has been demonstrated in the capillaries or in the small veins. Any change in the pressure in the arteriole would be expressed by change in the capillary blood; for as long as there is any circulation at all, there must be a plus pressure on the arterioles; even after death there must be a residuum of plus pressure in the arterial side, for the arteries are empty in the cadaver.

The circulation of blood in the veins of the foot is dependent on several factors: the driving pressure of the heart beat, the consequent filling of the system, and the resultant vis a tergo, and the action of the skeletal muscles—perhaps the most important factor in the peripheral circulation of lymph and venous blood—a factor too completely forgotten in various surgical conditions. This factor is of such importance that it is said that mere standing still will impede and may suspend the flow of blood through the feet; the value of rubbing the feet, of moving while in the trenches, is based on this consideration of physiology.

The standing still in the cold and wet may be the causal factor in trench foot, as it must be the exciting factor, in which event, however, all men should be susceptible. Since not all men under the same conditions fall victims, and since, in the men who are affected, these facts of blood pressure which we herewith demonstrate are to be found, we feel compelled to the conclusion that trench foot is a disease incited by the effect of cold and inaction on a foot whose vasomotor system is physiologically impaired; and therefore also more rarely we encounter a "trench hand" and "trench knees."

Our explanation of trench foot, based on our reasoning and our findings, is that there is in the arterioles of the foot an incomplete spasm; if the contraction were complete, the pressure would be thrown back to the heart and be immediately equalized or

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compensated. An incomplete spasm would afford a resistance to the pulse wave, which would be expressed as a localized increase of blood pressure. The first result of this arteriole spasm is ischemia with numbness, tingling and burning pain; the second result is a disturbance of capillary circulation, perhaps due to back pressure from the veins, perhaps due to the loss of rhythmicity of the driving force, perhaps to mere stagnation, with swelling of the foot from edema and diapedesis of red cells. This results in devitalization of the skin and the favoring of infectious processes, and may extend to actual gangrene.

It is evident that much work is needed to clarify the problem. We venture this preliminary report because of the importance of the facts shown, and because we are convinced that potassium iodid is a most important addition to the treatment of trench foot, for the prompt alleviation of pain, if for no other reason. We anticipate that the first reaction on the part of every one who has seen a trench foot or who is familiar with the prophylactic treatment in use will be one of amusement. We ask only that our results be controlled — blood pressure estimations are simple, potassium iodid is a harmless drug — before the reader starts to sharpen the barbs of the arrow of criticism.

In normal persons lying horizontally, blood pressure in the arm and leg is practically equal. On assuming the standing posture, blood pressure in the arteries of the lower extremity rises in exact proportion to the weight of the hydrostatic column of blood. This increase is approximately 2 mm. for each inch.

In many cases of aortic insufficiency, especially in those in whom compensation is good, the leg pressure definitely exceeds the arm pressure, even in recumbency. So far as we are aware, this is the only condition heretofore known in which such a pressure difference is commonly if not constantly present.

Our readings were made with two different types of aneroid sphygmomanometer. They were made with the patient recumbent and relaxed, first on the leg and then on the arm. The usual clinical precautions were taken to eliminate avoidable errors. The auscultatory method was used, the systolic pressure being read at the first regular appearance of sound, and the fifth phase being chosen as the diastolic criterion. The fifth phase rather than the fourth was chosen, owing to the difficulty of identifying the onset of the fourth phase in an artery so small, and accessible to the stethoscope with so much difficulty, as the posterior tibial. In a few cases readings had to be made from the dorsalis pedis, owing to the topography of the posterior tibial artery. We attach far less weight to our diastolic readings in the leg, as some of them were obtained with difficulty and occasionally uncertainty. The systolic readings, however, we believe to be clinically accurate.

Clinical and experimental investigation has shown that the iodids exert no direct action on blood pressure. Although frequently prescribed in cases of arterial hypertension, they are beneficial chiefly in syphilitic persons, and even in these, their action is indirect, and their blood pressure lowering effect slight.

The number of cases of trench foot in which we have made blood pressure estimations to date is fifty-three. Pressures were also taken on eight other persons not suffering with trench foot, these to be used as controls.

With but one exception, an inequality of the leg and arm pressure was found in the fifty-three cases of trench foot, consisting in a very definite increase of the leg over the arm pressure. In the one exception the arm pressure exceeded the leg pressure, after forty-eight hours reverting to the condition found in the other fifty-two cases. In the eight cases used as controls, the pressure was found equal in the arm and leg.

The leg pressure was also found increased in direct proportion to the severity of the case.

As the patient's condition improved, the pressure was found to drop, or in some instances, few in number, the arm pressure would rise, and by the time the patient had recovered, the arm and leg pressure had become equal; thirteen cases so far have been observed which show this phenomenon. These thirteen cases, together with the eight that had other conditions, justify the conclusion that the differences observed in trench foot cannot be ascribed to some technical fault in our blood pressure readings. The differences in arm and leg pressures are as follows: the maximum, 30 mm.; the medium, from 15 to 20 mm.; the minimum, from 8 to 10 mm. In thirty-one cases, potassium iodid in 20 grain doses three times daily was given, with the result that there was a decided relief of pain in twenty-four hours after the first dose had been given. There was also coincidently with the relief of pain in many of the cases a fall of pressure, an average drop of the leg pressure of from 10 to 15 mm.

In all of the thirty-one cases the potassium iodid was withheld for twenty-four hours on three occasions. The complaint from the patient, the following morning, was increased pain and insomnia. In some cases the dose of potassium iodid was increased to 30 grains three times daily, as 20 grains did not seem sufficient to control the pain.

We have not used sodium bromid, Dover's powder, morphin sulphate or any other form of hypnotic in twenty-nine out of the thirty-one cases. The potassium iodid seemed more beneficial in the relief of pain than any of the above mentioned drugs. The two remaining patients were given 5 grains each of Dover's powder at night for four consecutive nights. Both of these patients were severely affected; one had a gangrenous degeneration of the small toe and the other case marked discoloration and blisters of both feet. One of the twenty-nine cases in which potassium iodid alone was given was also a severe type with marked discoloration and blebs of both feet. The potassium iodid was sufficient in this case to control the pain.

It must not be understood that the relief from pain is absolute, but we feel thoroughly convinced from comparing the causes treated with potassium iodid with others treated by the ordinary methods that the relief is greater in the cases in which the potassium iodid alone has been given, and that the duration of the attack is markedly shortened.

The only other treatment used in these cases has been hot water bottles to the soles, boric powder dusted on the feet, and flannel bandages.

REPORT OF CASES

CASE 1.—Private Riley, aged 20, trench foot, severe; blood pressure, systolic and diastolic: leg, 158, 80; arm, 132, 62.

CASE 2.—Private Donin, aged 27, trench foot, moderate; blood pressure: leg, 145, 90; arm, 126, 65.

CASE 3.—Private McVoy, aged 35 trench foot, well; blood pressure: leg, 142, 70; arm, 138, 40.

CASE 4.—Sergeant Rhoades, aged 26, trench foot, slight numbness; blood pressure: leg, 125, 60; arm, 123, 65.

CASE 5.—Private Berry, aged 27, trench foot, well; blood pressure: leg, 130, 65; arm, 130, 70.

CASE 6.—Private Houghton, aged 21, trench foot, moderate; blood pressure: leg, 132, 80; arm, 105, 50.

CASE 7.—Private Grieves, aged 26, trench foot, very severe; blood pressure: leg, 160, 90; arm, 120, 85; Captain K's service.

CASE 8.—Private Sawton, aged 23, trench foot, severe; blood pressure: leg, 165, 90; arm, 120, 85; Captain K's service.

CASE 9.—Private English, aged 23, trench foot, severe; blood pressure: leg, 150, 85; arm, 120, 70.

CASE 10.—Private Danks, aged 24, trench foot and pyrexia of unknown origin, mild; blood pressure: leg, 130, 80; arm, 115, 75.

CASE 11.—Private Lang, aged 19, trench foot, mild; blood pressure: leg, 130, 80; arm, 125, 60.

CASE 12.—Private Partridge, aged 23, trench foot, severe; blood pressure: leg, 152, 90; arm, 120, 80.

CASE 13.—Private Coates, aged 31, trench foot, moderately severe; blood pressure: leg, 122, 85; arm, 105, 55.

CASE 14.—Private Cain, aged 19, trench foot, slight; blood pressure: leg, 120, 70; arm, 120, 60.

CASE 15.—Private Cartright, aged 26, trench foot, severe; blood pressure: leg, 148, 80; arm, 130, 80.

CASE 16.—Private Goodleman, aged 29, trench foot, moderately severe; blood pressure: leg, 142, 80; arm, 115, 60.

CASE 17.—Private Walters, aged 27, trench foot, moderately severe; blood pressure: leg, 142, 80; arm, 110, 60.

CASE 18.—Private Smith, aged 22, trench foot, moderately severe; blood pressure: leg, 120, 70; arm, 110, 60.

CASE 19.—Private Porter, aged 26, trench foot, well; blood pressure: leg, 110, 60; arm, 110, 60.

CASE 20.—Private Fielding, aged 31, trench foot, moderately severe; blood pressure: leg, 140, 80; arm, 105, 60.

CASE 21.—Private Lewis, aged 22, trench foot, mild; blood pressure: leg, 110, 60; arm, 100, 70.

CASE 22.—Private Cornwell, aged 27, trench foot, mild; blood pressure: leg, 130, 70; arm, 120, 55.

CASE 23.—Private Huckins, aged 23, trench foot, moderately severe; blood pressure: leg, 130, 60; arm, 125, 58.

CASE 24.—Private McMann, aged 20, trench foot, mild; blood pressure: leg, 130, 80; arm, 120, 70.

CASE 25.—Private Chambers, aged 24, trench foot, mild; blood pressure: leg, 138, 80; arm, 128, 70.

CASE 26.—Private Jackson, aged 24, trench foot, well; blood pressure: leg, 120, 65; arm, 120, 63.

CASE 27.—Private Porter, aged 24, trench foot, well; blood pressure: leg, 130, 80; arm, 126, 70.

CASE 28.—Private Lovett, aged 23, trench foot, well; blood pressure: leg, 130, 70; arm, 130, 70.

CASE 29.—Private Jenkins, aged 25, trench foot. Dec. 8, 1917, moderately severe; blood pressure: leg, 130, 80; arm, 105, 70.

CASE 30.—Private Allford, aged 25, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 140, 78; arm, 138, 75. November 9, better; blood pressure: leg, 135, 80; arm, 130, 75.

CASE 31.—Private Potter, aged 20, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 132, 80; arm, 130, 80. November 9, worse; blood pressure: leg, 138, 90; arm, 118, 70. November 14 better; blood pressure: leg, 120, 75; arm, 108, 68.

CASE 32.—Private Martine, aged 20, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 130, 80; arm, 115, 70. November 14, same; blood pressure: leg, 135, 85; arm, 115, 80. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 135, 70; arm, 120, 65.

CASE 33.—Private Patterson, aged 21, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 120, 84; arm, 112, 60. November 9, worse; blood pressure: leg, 130, 85; arm, 120, 65. November 14, potassium iodid, twenty-four hours; improved; blood pressure: leg, 108, 80; arm, 110, 60.

CASE 34.—Private Wells, aged 26, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 152, 90; arm, 120, 80. November 9, improved; blood pressure: leg, 143, 70; arm, 120, 65. November 10, same; blood pressure: leg, 143, 90; arm, 128, 75.

CASE 35.—Private Snowden, aged 23, trench foot. Nov. 7, 1917, moderate; blood pressure: leg, 130, 75; arm, 115, 60. November 9, greatly improved; blood pressure: leg, 122, 75; arm, 108, 75. November 14, much better; up; blood pressure: leg, 110, 60; arm, 110, 70.

CASE 36.—Private Lincoln, aged 26, trench foot. Nov. 7, 1917, moderate; blood pressure: leg, 122, 60; arm, 108, 60. November 14, better; blood pressure: leg, 125, 70; arm, 110, 70. November 23, well; potassium iodid, four days; blood pressure: leg, 130, 80; arm, 130, 80.

CASE 37.—Private Moorhead, aged 25, trench foot. Nov. 18, 1917, severe; potassium iodid; moderate; blood pressure: leg, 130, 80; arm, 98, 50. November 20, better (T. B.); blood pressure: leg, 115, 70; arm, 115, 30.

CASE 38.—Private Fuller, aged 27, trench foot. Nov. 18, 1917, mild; potassium iodid; blood pressure: leg, 110, 80; arm, 100, 60. November 20, well; blood pressure: leg, 110, 80; arm, 112, 80.

CASE 39.—Private Lambert, aged 30, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 80; arm, 130, 70. November 19, pain less; blood pressure: leg, 130, 95; arm, 128, 80.

CASE 40.—Private Gittings, aged 25, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 125, 65; arm, 100, 70. November 20, better; blood pressure: leg, 118, 60; arm, 98, 50.

CASE 41.—Private Ray, aged 26, trench foot. Nov. 19, 1917, moderately severe; blood pressure: leg, 130, 90; arm, 100, 60. November 23, better; potassium iodid, twenty-four hours; blood pressure: leg, 128, 80; arm, 110, 65.

CASE 42.—Private Fielding, aged 23, trench foot. Nov. 20, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 80; arm, 105, 60. November 30, great improvement; blood pressure: leg, 125, 80; arm, 120, 80.

CASE 43.—Private Carter, aged 25, trench foot. Nov. 18, 1917, moderately severe; potassium iodid; blood pressure: leg, 160, 100; arm, 130, 75. November 19, less pain; blood pressure: leg, 150, 100; arm, 130, 70. November 20, same; blood pressure: leg, 150, 100; arm, 128, 70. November 27, worse; increased potassium iodid; pyrexia of unknown origin; complications; blood pressure: leg, 157, 90; arm, 140, 80. December 2, better; blood pressure: leg, 135, 80; arm, 130, 70.

CASE 44.—Private Gee, aged 26, trench foot. Nov. 18, 1917, mild; potassium iodid; blood pressure: leg, 120, 80; arm, 115, 65. November 21, well; blood pressure: leg, 100, 50; arm, 100, 50. November 24, cough and pyrexia of unknown origin; complications; blood pressure: leg, 110, 60; arm, 110, 60. November 27, fever; pyrexia of unknown origin; increased pain in ankle; blood pressure: leg, 125, 80; arm, 118, 80. December 3, worse; England; blood pressure: leg, 125, 90; arm, 116, 80.

CASE 45.—Patient Collier, aged 29, trench foot. Nov. 7, 1917, mild; blood pressure: leg, 138, 80; arm, 118, 62. November 9, pain more pronounced; blood pressure: leg, 138, 80; arm, 125, 60. November 10, pain greatly increased; blood pressure: leg, 155, 95; arm, 128, 65. November 16, potassium iodid, twenty-four hours; intense headache; nausea; vomiting; blood pressure: leg, 180, 90; arm, 180, 80. Urine examination, trace of albumin; otherwise negative; England.

CASE 46.—Private Martin, aged 26, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 140, 90; arm, 128, 80. November 9, pain more severe; blood pressure: leg, 151, 85; arm, 138, 85. November 10, nitroglycerin, $\frac{1}{100}$ grain; same; blood pressure: leg, 150, 85; arm, 128, 85. November 11, nitroglycerin, $\frac{1}{50}$ grain; blood pressure: leg, 150, 90; arm, 118, 75. November 14, better; blood pressure: leg, 140, 90; arm, 120, 80. November 16, potassium iodid, twenty-four hours; blood pressure: leg, 140, 80; arm, 130, 80.

November 19, up; no pain; blood pressure: leg, 132, 60; arm, 132, 70.

Case 47.—Private Dove, aged 25, trench foot. Nov. 7, 1917, moderately severe; blood pressure: leg, 135, 65; arm, 120, 60. November 9, better; blood pressure: leg, 100, 30; arm, 90, 50. November 14, same; blood pressure: leg, 110, 80; arm, 100, 50. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 125, 65; arm, 122, 60. November 19, no pain; up; blood pressure: leg, 110, 65; arm, 110, 60. November 23, well; up; blood pressure: leg, 110, 60; arm, 110, 60.

Case 48.—Private Dawson, aged 22, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 150, 80; arm, 125, 65. November 9, worse; more pain; blood pressure: leg, 150, 90; arm, 125, 65. November 14, much better; blood pressure: leg, 138, 60; arm, 130, 70. November 16, potassium iodid, twenty-four hours; no pain; blood pressure: leg, 130, 80; arm, 130, 80. November 19, slight pain in legs; up; blood pressure: leg, 140, 80; arm, 140, 80. November 23, some stiffness in ankle; blood pressure: leg, 120, 80; arm, 130, 70.

Case 49.—Private Brownhall, aged 20, trench foot. Nov. 7, 1917, severe; blood pressure: leg, 150, 80; arm, 120, 60. November 9, improved; potassium iodid; blood pressure: leg, 140, 90; arm, 120, 60. November 14, better; blood pressure: leg, 120, 80; arm, 110, 70. November 16, better; blood pressure: leg, 123, 70; arm, 122, 70. November 19, no pain; up; blood pressure: leg, 130, 80; arm, 130, 70.

Case 50.—Private Watson, aged 23, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 140, 80; arm, 138, 70. November 20, better; blood pressure: leg, 140, 70; arm, 128, 60. November 24, potassium iodid increased; gangrene worse; blood pressure: leg, 170, 100; arm, 138, 70. December 1, better; blood pressure: leg, 158, 100; arm, 120, 70. December 2, better; thyroid extract, 5 grains; blood pressure: leg, 170, 110; arm, 130, 80. December 3, better; up; blood pressure: leg, 150, 110; arm, 130, 80. December 10, gangrene improved; walking; blood pressure: leg, 150, 90; arm, 135, 80.

Case 51.—Private Shatwell, aged 20, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 100, 50; arm, 80, 40. November 24, worse; blood pressure: leg, 160, 80; arm, 120, 60. November 27, better; blood pressure: leg, 145, 100; arm, 120, 69. December 1, potassium iodid stopped; better; blood pressure: leg, 138, 90; arm, 110, 60. December 3, thyroid extract, twenty-four hours; no pain; blood pressure: leg, 140, 100; arm, 117, 65. December 10, no pain; walking; blood pressure: leg, 120, 70; arm, 120, 70. December 11, walking; shoes; blood pressure: leg, 120, 70; arm, 120, 80.

Case 52.—Private Cain, aged 19, trench foot. Nov. 18, 1917, severe; potassium iodid; blood pressure: leg, 130, 50; arm, 150, 70. November 19, pain better; blood pressure: leg, 145, 90; arm, 150, 70. November 20, better; blood pressure: leg, 152, 100; arm, 150, 80. November 23, better; blood pressure: leg, 150, 100; arm, 138, 80. November 24, better; blood pressure: leg, 148, 100; arm, 130, 70. November 27, improved; thyroid extract; blood pressure: leg, 150, 95; arm, 130, 65. December 1, better; blood pressure: leg, 135, 90; arm, 120, 60. December 2, improving; blood pressure: leg, 128, 80; arm, 130, 50. December 3, sleeping all night; up; blood pressure: leg, 125, 90; arm, 127, 60.

Case 53.—Private Dunning, aged 26, trench foot. Nov. 20, 1917, moderately severe; potassium iodid; blood pressure: leg, 140, 85; arm, 110, 65. November 26, same; blood pressure: leg, 130, 70; arm, 100, 60. December 1, less pain; blood pressure: leg, 138, 80; arm, 100, 50. December 2, better; thyroid extract, 2 ds.; blood pressure: leg, 128, 80; arm, 110, 70. December 3, better; blood pressure: leg, 110, 80; arm, 98, 60. December 7, up walking; blood pressure: leg, 110, 75; arm, 105, 70.

CONTROLS

Case 54.—Private Jones, aged 27, myalgia. November 7, 1917, blood pressure: leg, 148, 80; arm, 148, 80.

Case 55.—Private Mitcham, aged 25, gunshot wound; spinal cord paralysis. Nov. 7, 1917, blood pressure: leg, 80, 42; arm, 80, 42.

Case 56.—Private Isted, aged 27, arthritis; blood pressure: leg, 135, 75; arm, 132, 75.

Case 57.—Private Horth, aged 24, neurasthenia; shell shock; blood pressure: leg, 110, 80; arm, 112, 68.

Case 58.—Private Brown, aged 26, phthisis; blood pressure: leg, 130, 70; arm, 130, 70.

Case 59.—Private Holmes, aged 23, gunshot wound of leg; blood pressure: leg, 120, 70; arm, 120, 70.

Case 60.—Private Cooper, aged 27, Raynaud's disease. November 27, 1917, affecting feet; blood pressure: leg, 145, 80; arm, 130, 80. November 30, no attack; blood pressure: leg, 130, 80; arm, 130, 80.

Case 61.—Private Newton, aged 23, dermatitis exfoliativa of feet and leg; blood pressure: leg, 128, 80; arm, 128, 80.

EPIDEMIC CEREBROSPINAL MENINGITIS AT CAMP McCLELLAN

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The preliminary report by Major Herrick[1] on the epidemic of meningitis at Camp Jackson calls attention to the incorrectness of the generally accepted view that epidemic cerebrospinal meningitis is primarily a meningitis. His view, that it is a secondary involvement of the meninges, appears to be the correct conception, and it is my purpose here to emphasize, from observations made at Camp McClellan, the importance of his conclusions.

As far as is known, all meningitis, exclusive of traumatic meningitis and brain abscess, is secondary to hematogenous infection. This is common knowledge with regard to tuberculous, pneumococcic, streptococcic, staphylococcic, influenzal, typhoidal and anthrax meningitis. That meningococcic meningitis should also fall into this class is but a logical deduction because of the fact that blood cultures are often positive early in the disease, while later they are very rarely positive. It is probable that if seen early enough, all cases of meningococcic meningitis would give positive blood cultures.

A point of interest relative to the increase of carriers among the soldiers here in camp has been noted. In the month of November and December, from 3 to 6 per cent. of carriers were found. During the month of January, this has risen to from 12 to 20 per cent. in about 3,000 cultures made. While there has been this large increase of carriers, there has been no appearance of an epidemic, although there has been an increase of sporadic cases. In only one instance has more than one case of meningitis developed in one company, while from some of the companies as high as forty carriers have been found. Though it has not been possible to follow up accurately, it has been noted that there has been an epidemic of sore throats synchronous with the increase of the numbers of carriers. In at least half a dozen cases it has been observed that men with severe pharyngitis showed on culture large numbers of meningococci, and that on the pharyngitis clearing up they quickly became free from the organisms. In other words, it is probable that the initial meningococcic infection is a nasopharyngitis, which may be mild or severe in character. It is likely that, just as in streptococcic

1. Herrick, W. W.: The Epidemic of Meningitis at Camp Jackson, The Journal A. M. A., Jan. 26, 1918, p. 227.

throat infections, the large majority remain local infections, while a few develop systemic infections. And it is likely that the cases of meningeal infection arise from these. It may also be true that not all cases that develop hematogenous infection develop meningitis, just as not all cases of pneumococcic systemic infection develop infection of the meninges.

Cultures of the nasopharynx of the cases of meningitis treated at the base hospital at Camp McClellan have shown that some harbor the meningococcus in their throats and that others do not. The fact that in some cases the meningococcus could not be recovered from the throat lends support to the belief that the original infection was a sore throat which cleared up before the meningitis developed. Two cases having a direct bearing on this point have been observed at the hospital. Both patients had an acute pharyngitis from which cultures were made for diphtheria. No diphtheria bacilli were found on culture, but it was noted at the time that there was a large predominence of gram negative diplococci. At the time not a great deal of attention was paid to this observation. The throat condition cleared up, and a few days later both patients developed meningococcic meningitis, as was proved by the laboratory findings. These two cases emphasize the point that the probable primary focus of infection was the acute pharyngitis, which cleared up before the meningeal involvement occurred. It also lends support to the early use of antimeningococcic serum early in the disease, as suggested by Major Herrick.

It is probable that the study of the meningococcus carriers will develop facts now known with regard to diphtheria carriers — that there are temporary and also chronic carriers. This has been noticed in the work done here. It has also developed that it is difficult to free the meningococcus carriers from meningococci, just as it is hard to free the diphtheria carriers. From an epidemiologic point of view, it is essential to have these chronic carriers placed in quarantine and kept there until they are entirely free from meningococci. To isolate these carriers effectually, cultures of the whole command should be made carefully and systematically, regardless of whether or not there is any meningitis in camp; for, once the carriers are removed, the danger of having an epidemic is over.

As it is definitely known that meningococcus infection spreads by contact, there are four classes of men in the Army of whom cultures should be systematically made at least once every two weeks:

1. Those coming in direct contact with known cases of meningitis, that is, ward surgeons, nurses and orderlies.

2. All oral, nose and throat surgeons, because of their intimate dealings with the tissues that harbor the organism.

3. Dental surgeons, because of their proximity to the patient in doing their work.

4. All anesthetists, for the same reason as that which obtains for the dental surgeons.

The reasons for such cultures are twofold: First, to prevent the spread of the meningococcus from one patient to another, and, second, to protect the individual personally. It is also suggested that all of the foregoing persons be required to spray the nose and throat with a suitable disinfectant to prevent their becoming harborers of the meningococcus.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

BARBITAL.—Diethyl-barbituric Acid.—Acidum Diaethyl-Barbituricum.—Diethyl Malonyl Urea.—Malo-Urea.—2, 4, 6-trioxy-5-diethyl pyrimidin, $CO(NH\text{-}CO)_2C(C_2H_5)_2$.

Actions, Uses, Dosage, Physical and Chemical Properties.—The same as those of veronal (see New and Nonofficial Remedies, 1917, p. 86).

Barbital-Abbott.—A brand of barbital complying with the N. N. R. standards.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 782,739 (Feb. 14, 1905; expires 1922) by license of the U. S. Federal Trade Commission.

MERCURIC BENZOATE.—Hydrargyri Benzoas.—Hydrargyrum Benzoicum.—$Hg(C_6H_5COO)_2+H_2O$.—The mercuric salt of benzoic acid.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1917, p. 188.

Mercury Benzoate-Merck.—A brand of mercuric benzoate.

Manufactured by Merck and Company, New York. No. U. S. patent or trademark.

CHLORCOSANE.—A liquid obtained by chlorinating solid paraffin. It contains about 50 per cent. of chlorine in stable combination.

Actions and Uses.—Chlorcosane is used as a solvent for dichloramine-T. With it solutions containing up to 8 per cent. may be prepared.

Manufactured by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Chlorcosane is prepared according to the process of H. D. Dakin: paraffin, having a melting point of 50 C. or higher, is melted and, while the liquid is maintained at a temperature between 125 and 140 C., chlorine is passed in until the weight of the paraffin has increased from 45 to 55 per cent. The resulting liquid, while still warm, is agitated with 5 per cent. of its weight of dry sodium carbonate and filtered.

Chlorcosane is a yellowish, oily liquid, odorless, tasteless and neutral to litmus. Its specific gravity is 1 to 1.04 at 15 C.

The chlorine of chlorcosane is not readily removed by treatment with boiling solutions of alkalies and does not react with metallic magnesium suspended in ether. When heated with soda lime to 250 C. unsaturated hydrocarbons and a small proportion of fatty acid are produced. When chlorcosane is boiled with anilin, most of its chlorine is removed.

BETANAPHTHYL SALICYLATE.—Betanaphtholis Salicylas.—$C_6H_4.OH.CO.O.(C_{10}H_7)$.—The salicylic acid ester of betanaphthol.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1917, p. 198.

Betanaphthyl Salicylate (Calco).—A brand of betanaphthyl salicylate.

Manufactured by the Calco Chemical Company, Bound Brook, N. J. No U. S. patent or trademark.

ACETYLSALICYLIC ACID (See N. N. R., 1917, p. 265).

Acetylsalicylic Acid-Merck.—A non-proprietary brand complying with the standards for acetylsalicylic acid.

Manufactured by Merck & Co., New York.

CHLORAZENE (See New and Nonofficial Remedies, 1917, p. 140).

The following dosage form has been accepted:

Chlorazene Surgical Powder.—An impalpable powder composed of chlorazene 1 per cent., zinc stearate 10 per cent. and sodium stearate 89 per cent.

Support the Modern Physician.—We have a science of hygiene, but we live by the health code of the middle ages. The enlightened physician of today would broaden his field of individual "cure;" would give skilled service in the common interest for the common good; would prevent, not cure; would substitute health for sickness, vigor for weakness. Is he supported even by the intelligent?—Oscar Dowling,

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SATURDAY, FEBRUARY 16, 1918

Last week a blue slip was inserted in THE JOURNAL for dues and subscription. In the same issue we stated that by inserting this slip we were again trying to save the expense of sending out bills, that a good percentage had already responded to a former similar notice, and that this slip was inserted with the hope that many more would remit without waiting for the usual individual bill. We emphasize again that those who have already remitted should disregard the slip.

INFECTION WITH THE ROUNDWORM ASCARIS

The usually accepted conception of the origin of ascariasis, or eelworm infection, in man and the pig attributes it to ingestion of the egg of the parasite *Ascaris lumbricoides*. Stiles[1] stated ten years ago that the eggs escape in the feces, and slowly (in from one to several months, according to conditions) develop embryos. No intermediate host is believed to be required, at least for *Ascaris lumbricoides* or the canine eelworm *Toxocara canis*, as it is in the case of certain other well known zooparasitic infections. It was maintained that when the developed eggs are swallowed, either in contaminated food or in water, or from hands soiled with dirt containing the eggs, the embryo develops directly to the adult stage. Drinking water and fruits, especially, are blamed for carrying the parasite to man. Stiles states that he has bred common house-flies in a dish containing eggs of the eelworm of hogs, a parasite closely allied to that of man, and later found the eggs in the intestine of the adult flies. According to Stiles, therefore, it would seem that flies, by breeding in privies, might act as disseminators of the lumbricoid worm in man.

In a series of notable papers on the life history of *Ascaris lumbricoides*, the common intestinal roundworm of man, and the closely related if not identical parasites (*A. suum* or *A. suilla*) occurring in the intestine of pigs, Capt. F. H. Stewart[2] of the Indian Medical Service has come to a conclusion somewhat at variance with current opinion. He failed in his attempts to infect pigs, but found that if rats or mice were fed *Ascaris* eggs, the eggs hatched in the alimentary tract, and the embryos migrated to the liver, spleen and lungs. In the course of their migrations they increased in size and passed through certain developmental changes, many of them finally reaching the alimentary tract again by way of the lungs, trachea and esophagus. The young worms that succeeded in regaining the alimentary tract did not continue their development, and soon passed out of the body in the feces, so that rats or mice surviving the pneumonia commonly caused by the invasion of the lungs became free of the parasite as early as the sixteenth day after infection. Stewart concluded that it is necessary in the life cycle for the eggs to be swallowed by rats or mice, and that in these animals the embryos hatching from the eggs undergo certain migrations and developmental changes, after which they may be transferred in the feces or saliva of the rats or mice to food or other materials likely to be ingested by human beings or pigs, and thus ultimately reach their final hosts.

The importance of an accurate understanding of the mode of infection with *Ascaris* is obvious. It is one of the most common parasites of man, and may occur at any age. In an examination of more than 3,000 persons, Stiles found *Ascaris* in about 0.5 per cent. A repetition of the essential features of Stewart's work has been undertaken in the Bureau of Animal Industry at Washington by Ransom and Foster.[3] They too find that the development of *A. lumbricoides* and closely related forms is direct, and that no intermediate host is required. The eggs, when swallowed, hatch out in the alimentary tract; the embryos, however, do not at once settle down in the intestine, but migrate to various other organs, including the liver, spleen and lungs. Within a week, in the case of the pig *Ascaris*, the migrating larvae may be found in the lungs, and have meanwhile undergone considerable development and growth. From the lungs the larvae migrate up the trachea and into the esophagus by way of the pharynx, and this migration up the trachea may already become established in pigs, as well as in artificially infected rats and mice, as early as a week after infection. On reaching the alimentary tract a second time after their passage through the lungs, the larvae, if in a suitable host, presumably settle down in the intestine and complete their development to maturity; if in an unsuitable host, such as rats and mice, they soon pass out of the body in the feces. Heavy invasions of the lungs by the larvae of *Ascaris* produce a

1. Stiles, C. W.: Osler's Modern Medicine, 1907, **1**, 597.

2. Stewart, F. H.: On the Life-History of Ascaris Lumbricoides, Brit. Med. Jour., 1916, **2**, 5; The Life-History of Ascaris Lumbricoides, ibid., p. 474; Further Experiments on Ascaris Infection, ibid., p. 486; On the Life-History of Ascaris Lumbricoides, ibid., p. 753; On the Development of Ascaris Lumbricoides Lin. and Ascaris Suilla Duj. in the Rat and Mouse, Parasitology, 1917, **9**, 213.

3. Ransom, B. H., and Foster, W. D.: Life History of Ascaris Lumbricoides and Related Forms, Jour. Agric. Research, 1917, **11**, 395.

serious pneumonia which is frequently fatal in rats and mice, and apparently caused the death of a young pig one week after it had been fed with numerous *Ascaris* eggs.

Ransom and Foster venture to believe, further, that ascarids are frequently responsible for lung troubles in children, pigs and other young animals. The fact that the larvae invade the lungs as well as other organs beyond the alimentary tract and can cause a serious or even fatal pneumonia indicates that these parasites are endowed with greater capacity for harm than has heretofore been supposed.

The relative greater frequency of *Ascaris* infection in childhood and youth is well known. The susceptibility greatly decreases as the host becomes older, so that in adult man the infection is comparatively much rarer.

THE CAUSE OF DEATH

The dictionary defines death as the cessation of all vital phenomena without capability of resuscitation. It is a manifestation in which every physician is inevitably interested, because he is frequently brought face to face with its seemingly invincible character; yet one will search the textbooks of medicine and physiology in vain to find an exposition of the precise and immediate cause of death. It has often been remarked, let us admit, that in ultimate analysis life has only two legs to stand on, namely, the heart and the lungs. This applies as well to the body as a whole, which demands appropriate circulation and ventilation of its blood to permit the continuance of its functions. But the scientific mind demands a more profound answer to the question of death. What sort of biologic change determines the cessation of the heart beat? What local alterations in the tissues occasion the omission of those nervous impulses that emanate from the respiratory center and control the indispensable act of breathing?

Perhaps we shall not go far astray if we seek the essential feature characterizing the death of the body as a whole in a single factor, the death of the respiratory center. The reason for giving preeminence to this seemingly small and restricted area is now patent to students of physiology. No tissue of the body is so sensitive to lack of oxygen as is the nervous tissue. The muscles can survive the effects of a deficient circulation and consequent impaired tissue respiration for hours and perhaps days. Even the excised heart that has ceased to contract for some time may be made to resume its rhythmic muscular performance on restoration of a suitable perfusion fluid, which need not even be blood. Not so with the nervous system, of which the respiratory center is a part. At best it can survive the lack of oxygen for only a few minutes before an irreversible failure of function sets in. The outcome is fatal; recovery is impossible. Asphyxiated nerve cells have lost the power of recuperation forever.

A recent investigator of the immediate cause of death, Dr. Whitney[1] of the Department of Medicine at the University of California, has pointed out, in emphasizing the primal importance of the respiratory center, that although respiration fails in the great majority of cases many minutes before the heart stops beating, this is not invariably the precise sequence. In certain cases, as he reminds us, circulatory conditions may be the primary cause of death, with failure of the respiration following immediately from lack of blood supply to the center. Thus, trauma to the heart, ventricular fibrillation, and perhaps other abnormalities of the heart-beat mechanisms may bring death, as well as peripheral causes.

Without considering the primary failure in blood supply to the respiratory center, the obvious lack of oxygen in various types of asphyxia, or an actual trauma of the center through mechanical injury, we may still ask, How is the failure of respiration brought about? It is natural to think of the result as due to some poison acting on the respiratory center. Drugs are known to stimulate or depress it. May not the genesis of unusual substances or the abnormal abundance of normal cell constituents be the decisive factor in permanently inhibiting this vital tissue? The accumulation of subtle poisons in the body in certain morbid states has often been postulated. Whitney[1] has given a more concrete trend to this belief by associating the moment of death with a very marked acidosis.

The effect of acids on the respiratory mechanism has formed the theme of numerous investigations in recent years, and the interrelations concerned have repeatedly been reviewed in THE JOURNAL.[2] The mechanism for the regulation of the acid-base equilibrium is usually so efficient that a rise in hydrogen ion concentration in the blood—an effective stimulus to the respiratory center—is rarely more than a transitory phenomenon. When acidosis becomes far more marked, however, owing to a failure in elimination of acid radicals or an undue production of them, the compensatory mechanism may ultimately break down. The primary stimulating effect of a certain degree of acidity ends in the paralysis produced by a higher concentration. The parallel between the symptoms of death in experimental acidosis, brought about by greatly increasing the hydrogen ion content of the blood, and in many clinical cases, has been drawn by Whitney. As death approaches, the breathing becomes more rapid and deeper, until dyspnea is violent; then rather suddenly there follows a break into a gasping, irregular respiration, less and less effective

1. Whitney, J. L.: Studies on Acidosis, Arch. Int. Med., December, 1917, p. 931.

2. Responses of the Respiratory Center, editorial, THE JOURNAL A. M. A., Dec. 11, 1915, p. 2089; Alveolar Air and Acidosis, March 18, 1916, p. 896; The Estimation of Acidosis Under Clinical Conditions, May 5, 1917, p. 1327; The Newer Conception of Acidosis, Aug. 25, 1917, p. 646; Carbon Dioxid and the Regulation of Respiration, Sept. 1, 1917, p. 735.

in keeping down the rapidly mounting carbon dioxid of the blood, and eventually respiratory paralysis.

It remains to be ascertained whether in cases of natural death there actually occurs an acidosis measurable in amount and comparable with what is necessary to evoke the similar symptoms of experimental acidosis. According to Whitney's studies, this need no longer be debated. An accurate examination of the blood carbonates by Van Slyke's method in many persons at the time of death showed that in a large number of instances an acidosis of such marked degree was present that it may well have caused the death. Since however, this was not invariably the case, it must be concluded that other toxic factors as well as acidity may operate to stop life. Among the group that failed to evince a fatal acidosis are included certain obscure toxemias seen with intestinal obstruction, malignant tumors, and pernicious anemia. Infections, on the other hand, seem to have a marked influence in causing acidosis. Perhaps this will explain the fact, so familiar to the clinician, that death does not attend many severe chronic cases, including kidney incompetence, circulatory failure and malignant conditions, until a so-called terminal infection sets in. As Whitney explains it, perhaps these abnormalities cannot unaided furnish the toxin that is necessary to paralyze the respiratory center; this poison must be furnished in the majority of cases by an infection for which the underlying chronic process has prepared a favorable soil. An excess of acid then arises; hence the fatal end.

PTOMAIN POISONING VERSUS FOOD-BORNE INFECTIONS

The decline in popularity of the expression "ptomain poisoning" is a happy omen. It represents a transition, gradual though it may be, from a poorly supported hypothesis as to the etiology of a state of disease to more concrete and more readily verified conceptions. As we review the evidence from our present position, gained by the advances of scientific investigation and an unrelentingly critical attitude, the suggestion of a close connection between the products of bacterial decomposition in tissues and the occasional outbreak of gastro-intestinal upsets in man is no longer so compelling. In the first place, the majority of the basic derivatives found in mediums in which bacteria are growing have proved not to be highly poisonous. These "ptomains" are for the most part amins formed from the amino-acids that are yielded by the proteins of disintegrating tissues. As they were among the first of the products of bacterial change in nitrogenous mediums to be recognized and dealt with by the chemist, it is not surprising that attention was centered on them as holding out the prospect of something definite in the explanation of the obscure intoxications following food ingestion. Often their actual existence has been postulated rather than demonstrated. Many an item of food has undoubtedly been unjustly charged in the past with containing unknown or undiscovered products of bacterial spoiling.

In the second place, in his vice presidential address on food-borne infections before the American Association for the Advancement of Science at the Pittsburgh meeting last December, Jordan[1] of the University of Chicago pointed out that ptomains are formed in the later stages of protein decomposition. He contends that by the time they are present, food containing ptomains would without much doubt almost invariably be condemned by the senses as nauesating and unfit to eat. But, as Jordan especially suggests, other and more tenable explanations can now be advanced to explain the genesis of food poisoning. Those outbreaks that have been most thoroughly investigated, says Jordan, have been found to be due not to the use of spoiled food containing ptomains, but either (1) to the presence of true bacterial toxins comparable to those of the diphtheria and tetanus bacilli and not to be regarded as the simple products of decomposition, or (2) to infection with specific bacteria borne in or on the implicated food article.

It may be objected that a toxin is today scarcely less vague in its significance than were the ptomains of a generation ago. It is true that the chemical nature of the so-called toxins remains to be elucidated. They are currently described as the chief poisonous products of bacteria, and are conceived to be manufactured specifically by synthetic processes. At any rate, emphasis is thus placed on specific micro-organisms rather than on food, per se, as the significant factor in the harmful situation.

Not long ago, the subject of botulism was discussed in The Journal.[2] It is worthy of emphasis that foods serve in a peculiar way as culture mediums for certain bacteria that produce highly poisonous toxins. Instead of perishing as they do in the air, water or soil, the micro-organisms multiply, so that, to quote Jordan, a very large proportion of the recorded outbreaks of food-borne intoxications have been traced to foods that have been prepared for the table and then allowed to stand before being eaten. Cooking, so far from surely destroying all bacteria, may, in some cases, provide a favorable temperature for their multiplication, if the heat is not made to penetrate all parts of the medium thoroughly. Milk is a well recognized carrier of danger. Less well known is the fact that meat may be the source of infection with the micro-organisms of the paratyphoid-enteritidis group. It is these that so often give rise to acute gastro-intestinal symptoms characteristic of so-called ptomain poisoning.

1. Jordan, E. O.: Food-Borne Infections, Science, Jan. 25, 1918, p. 80.
2. Food Poisoning, with Special Reference to Botulism, editorial, The Journal A. M. A., Aug. 11, 1917, p. 472.

Current Comment

INFLUENCE OF NATIONALITY ON MORTALITY

In spite of the complications of the problem presented by the crowding together of many races in the national melting pot, the Department of Health of New York City has undertaken to throw light on the influence of nationality on mortality by a comparative study of mortality conditions within the territory under its own jurisdiction. The report[1] emphasizes the fact that the crude or ordinary death rate of a community is not an accurate measure, in the comparison of that community with others. Too often a city, with a mortality far below that of more crowded Eastern cities, advertises its low rate with a reasonable certainty of having it accepted without question by an unthinking public. As a matter of fact, its low death rate is largely the result of a favorable age grouping of the population, which produces a reduced mortality, irrespective of surrounding health conditions. Other important factors that influence the death rate, and should therefore be considered before comparisons are made, include sex and its distribution, occupations dangerous to health, social and economic surroundings, climate and civil conditions. For instance, it is a matter of record in all civilized countries that the death rate among women is much lower than among men, the surplus mortality being due to hazardous occupations, suicide, and the excessive use of alcohol. It is also generally conceded, and verified by statistics, that an abnormally high death rate prevails in congested tenement districts, and that, generally speaking, the higher the poor man's wage, the better will be the health of his family and the smaller the amount of illness and death. Again, in discussing the influence of civil conditions, the report points out that the death rates among the married of both sexes are lower than among the single, widowed or divorced. All these conditions are taken into consideration in the writer's study of the mortality returns, and on this basis a standardized rate is determined, which is far more accurate than the crude rate. The report, which includes a comprehensive statistical survey of mortality among children under 5 years of age, shows that the lowest rate occurs among children of Russian, Austro-Hungarian and Swedish parents. On the other hand, a high mortality prevails among the children of English, German, Irish and Italian parents. The highest rates from congenital diseases are found among American, Irish and German infants. The rate for respiratory diseases among Italian children is double and treble that of the children of all other nationalities. Emphasis is laid on the fact that, in many respects, native stock seems less sturdy than foreign stock of recent acquisition. The children of native parents, for example, furnish the highest rate in malformations (47 per 10,000), in marasmus (222 per 10,000), and in tuberculosis (21 per 10,000). Among persons more than 5 years old, Irish, German, English and American males display the highest mortality, whereas the rates among Italians, Russians and Austro-Hungarians are considerably below the standard. Acute bronchitis, pneumonia and cancer greatly increase the mortality among Irish, German and English adults of both sexes. The mortality from accidental causes is higher among Irish males, and the rate from suicide is highest among German males, being 72 per 10,000.

1. Guilfoy, W. H.: The Influence of Nationality on the Mortality of a Community, with special reference to the City of New York, Pub. 18, Department of Health of the City of New York, 1917.

A TEST OF THE HEART'S FUNCTIONAL CAPACITY

Progress in clinical medicine has brought about the invention of a variety of so-called functional tests designed to ascertain the capacity of different organs to perform the physiologic tasks with which they are normally confronted. Thus we have become familiar with functional tests for the stomach, the pancreas and the kidneys; and in a sense the estimation of the basal metabolism of individuals likewise forms a basis for judging the character of the body's response to its fundamental need of energy. Departures from the average or normal responses of the functions concerned in the respective tests give an opportunity to determine the existence of pathologic conditions, and to judge of the efficacy of remedial measures. When the functional tests become comparatively easy of mastery and application in their technical details, they are more than likely to win a deserved place in diagnostic procedure. No organ requires the application of suitable tests of capacity more conspicuously than the heart, the seat of indispensable physiologic activities, and frequently the location of serious working defects. Methods of measuring its capacity for performance have repeatedly been proposed. At the New York session of the American Medical Association, last June, Barringer[1] presented evidence for the usefulness of successive measurements of systolic blood pressure and the pulse at frequent intervals after graduated exercise. In a person with a normal heart, shortly after work these factors in the circulation are increased, and are found to return rapidly to the figures noted before the work was begun. If successively increasing amounts of work are done, the same reactions will be observed. The greater the work the higher are the subsequent systolic pressure and pulse rate. Finally, an amount of work is reached which is followed by a different type of blood pressure curve. It does not reach its height, as normally, within thirty seconds after completion of the work, but at a later period (from fifty to ninety seconds) when the pulse rate has dropped back to normal. At this stage the heart has evidently overtaxed its reserve power, which Barringer has proposed to measure as an index of its functional capacity. The simplicity of the scheme proposed commends it for further consideration. It requires no unusual outfit or technical skill. Barringer remarks that it makes no difference what kind of work is used, stair climbing, walking, dipping exercises or

1. Barringer, T. B., Jr.: Studies of the Heart's Functional Capacity, Arch. Int. Med., December, 1917, p. 829.

dumb-bell work. Any one of these permits of a comparative measure of the cardiac reserve power. The delayed rise in systolic pressure is always obtained in normal persons whenever the task done exceeds a certain amount, and it makes no difference what group of muscles is employed. Clinically, it has been noted that patients with varying grades of cardiac insufficiency are able to perform much smaller quantities of work than normal persons before a delayed rise ensues. Even a minimal exertion brings this evidence of lack of reserve power in cases of marked insufficiency, edema, dyspnea when resting, etc. When the general condition of the health improves, the amount of work that can be done before a delayed rise of systolic pressure ensues becomes greater and greater. By a study of the character of the response, it thus becomes possible to measure in some tangible way the effects of drugs or various forms of physical therapy on cardiac patients. The kind and amount of exercise which may benefit them likewise becomes subject to more intelligent supervision.

THE COMPOSITION OF EDEMA FLUIDS

Studies of the detailed composition of the blood, as ascertained by the technic of microchemical analysis, have demonstrated the value which information thus secured may have in the domain of diagnosis. The nonprotein nitrogenous compounds, such as urea, uric acid, creatin and creatinin, have been determined with considerable precision for a variety of clinical conditions. The sugar content of the blood has been the subject of exhaustive investigations, with the result that chemical analysis of the circulating fluid has become a highly important supplementary procedure in addition to the routine examination of the urine, in conditions in which the carbohydrate metabolism is concerned. Of late, the fats and lipoids of the blood have also come within the range of accurate analytic estimation for diagnostic purposes. As might be expected, as a result of these studies, other body fluids than the blood are beginning to be studied by the procedures that have been found so useful. We are likely, therefore, in the immediate future to acquire important additions to the all too scanty knowledge of the composition of various secretions, transudates and exudates. Facts derived in this way ought to be helpful in solving some of the still debated questions as to the mode of origin of these fluids. Until very recently, one could scarcely expect to learn more about a transudate, for example, than that it was richer or poorer than usual in solids, that its protein content showed an approach to certain types, that it contained or lacked certain enzymes, and perhaps that it exhibited physicochemical properties described in terms of osmotic pressure.

A new series of analytic data has recently been contributed from the chemical laboratory of the Massachusetts General Hospital by Denis and Minot.[1] They show that many of the nonprotein constituents of various types of edema fluid occur in the same concentration in exudates and transudates as in blood. Fat and cholesterol ordinarily occur in transudates in relatively small amounts. So far as we are aware, the effect of diet on the nonprotein constituents of body fluids other than blood has never been determined in any systematic way. In observations on ascitic fluids obtained in the case of cirrhosis of the liver at intervals, Denis and Minot have found a prompt response to changes in the food intake. The protein content was not altered by diets rich or low in protein; but the responses of the nonprotein nitrogen, the urea, uric acid and cholesterol showed that, like the blood, a transudate can easily be influenced in composition by variations in the diet.

1. Denis, W., and Minot, A. S.: The Nonprotein Constituents of Edema Fluids, Arch. Int. Med., December, 1917, p. 879.

THE DASHEEN AS FOOD

The Office of Home Economics at the United States Department of Agriculture in Washington has recently called attention to an addition to the dietary in the dasheen, a root at present little known in the United States, but forming a staple article of food for millions of people in the tropics. The dasheen is a starchy vegetable resembling the potato more nearly than any other familiar article of food used in this country. It is reported to be suited to the warm localities where white potatoes do not grow well. It can be cooked in much the same way as these highly prized vegetables, and is reputed to be relished by those who are familiar with the suitably prepared product. In a series of digestion experiments conducted on men by Langworthy and Holmes,[1] the subjects of their own volition ate as much as 1½ pounds of dasheen daily without any observed physiologic disturbances, so that the government experts conclude that considerable amounts of the vegetable may be used safely in the dietary, and that they are palatable. In the digestion trials in which the dasheen formed practically all of the carbohydrate present, the digestibility of the latter was over 97 per cent., thus comparing favorably with the best utilized starchy products. The results were good alike for the mature and immature dasheens.

1. Langworthy, C. F., and Holmes, A. D.: The Digestibility of the Dasheen, Bull. 612, U. S. Dept. Agric., Nov. 8, 1917.

The Italian Medical Profession During the War.—The physicians of Lombardy and Liguria in Italy have taken the lead in forming what they call the Unione dei Medici Italiani per la Resistenza Nazionale. Its aim is to stimulate physicians throughout the country to aid and encourage the general public "in these tragic hours since the close of October." Public lectures and private talks are being held at various centers, and one by E. Morselli is reproduced in the *Policlinico,* Dec. 2, 1917, p. 1429. Among other things he said: "Medicine, rich with its noble traditions, should be the high priest of civilization and progress and especially in these dark days of war physicians should be elements and factors of energy . . . spurring their rich clients to give much and give often; encouraging the working classes to greater efforts, to save their wages and put up with the privations brought by the war; combating cowardice and treachery and enemy propaganda; striving to raise the neuropsychic tone of the whole community; spurring the authorities, the government to more energetic action for the salvation and the honor of the country." He regards it as the duty of the profession to combat the liquor trade, prostitution, and all causes tending to debase, including the display of luxury by the very rich, which tends to rouse base instincts.

Medical Mobilization and the War

Personnel of the Medical Department

The week ending February 8 there were 764 officers in the Medical Corps, 16,771 in the Medical Reserve Corps; of whom 13,401 were on active duty, 1,198 in the Medical Corps of the National Guard and 12 in the Medical Corps of the National Army. There were 760 officers in the Sanitary Corps and 136 officers in the Ambulance Service.

Increased Rank for Medical Officers

Last week Senator Owen introduced into the Senate, and Representative Dyer into the House of Representatives, the following bill regarding rank of the Medical Reserve Corps of the Army:

"That hereafter the commissioned officers of the Medical Corps, and of the Medical Reserve Corps of the United States Army on active duty shall be distributed in the several grades in the same ratios heretofore established by law in the Medical Corps of the United States Navy.

"The Surgeon-General shall have authority to designate as 'consultants' officers of either corps and retire them as the interests of the service may require."

Selective Service Regulations for Medical Advisory Boards

At the request of the Provost-Marshal General, the Surgeon-General of the Army appointed a board of physicians specializing in particular subjects, to prepare regulations on physical examination for the medical advisory boards. This board has prepared exhaustive and detailed regulations for the guidance of the advisory boards. They are being published in the form of a manual and will be sent out in a few days. Incorporated in the manual also will be the regulations for local boards, prepared by the same committee, thus making the complete regulations available in one manual.

New Assignments in the Public Health Service

During the week ending February 6 the following important changes were made in the administrative organization of the United States Public Health Service:

Surgeon J. W. Schereschewsky has been relieved at Pittsburgh and assigned for duty as assistant surgeon-general in charge of the Division of Scientific Research. Assistant Surgeon-General J. W. Kerr, who formerly held this position, has been assigned to the director of the Hygienic Laboratory for temporary duty.

Surgeon B. S. Warren has been relieved from duty with the United States Employees' Compensation Commission and has been assigned as assistant surgeon-general in charge of the Division of Sanitary Reports and Statistics. Assistant Surgeon-General J. W. Trask, who held the latter position, has been assigned to the position vacated by Surgeon Warren.

Assistant Surgeon-General W. C. Rucker, in charge of domestic quarantine, has been assigned for special temporary duty with the War Department in the British Isles and on the continent of Europe in connection with maritime quarantine for the prevention of the introduction of quarantinable diseases into the United States.

Red Cross Information Regarding Soldiers in Training Camps

In reply to a letter of the Secretary of War, to the American Red Cross, suggesting that the service of the Red Cross in keeping families in America in personal touch with soldiers ill or wounded in the field, which is already established in France, be extended to the training camps in the United States, Henry P. Davison, chairman of the Red Cross War Council, announces that it will gladly extend this service to the camps in America, and will immediately appoint responsible men as searchers in the various camps, that this work may be put into operation as quickly as possible. The work will of course be done under regulations made by the War Department. Orders will be issued promptly after the details have been arranged by the Surgeon-General and Adjutant-General of the Army.

The American Red Cross in Italy

The work of the American Red Cross in Italy in supply emergency relief during and immediately following the invasion of Italy in October and November, and the later splendidly organized system of salvage of the remains of the disorganized armies and the dispossessed populace of the invaded regions, is another monument to the efficiency of this great organization. In a series of articles Paul U. Kellogg, editor of the *Survey*, and a member of the investigating committee on refugees, has described that great work, and the plans for the housing, hospital and medical care, feeding and general rehabilitation of the destitute populations.

Kellogg says that before the permanent organization of the Red Cross commission had yet sailed for Italy following the declaration of a state of war with Austria, the existing organization in France, at the very peak of its load for American and French troops and French civilians, was able to send to Italy experienced men to open offices in Rome early in November, canvass the situation by wire through the American embassy and consular service, despatch an ambulance section and two trains of supplies, make wholesale purchases in Italy while supplies were en route from France, wire money to spend on the spot to consuls, committees and local agencies, send out north and south the nucleus of a field staff and commission two ranking American experts in emergency relief to make a rapid survey of the whole field as the basis for a long plan of help. The American Relief Clearing House, an organization already on the ground having as its object originally the organization and transportation of supplies for hospitals, merged with the Red Cross, and with large sums granted by the Red Cross used its organization in furthering the emergency work.

In preparing for permanent relief, districts were experimentally organized as follows: For the war zone, with headquarters at Padua; for Lombardy, at Milan; for Piedmont, at Turin; for Liguria and the Mediterranean coast of Tuscany, at Genoa; for Tuscany and Emilia, at Florence; for the Venetian colonies along the Adriatic, at Rimini; for Central Italy and Sardinia, at Rome; for Campania, Basilicata and Puglia, at Naples, and for Sicily and Calabria at Palermo. It is the plan that the refugees must be distributed throughout the whole of Italy in order not to burden unduly any one community, for the work of relief and rehabilitation must go on for months and perhaps for years.

To the Red Cross is not due all the credit, of course, for relief work, for in addition to the well organized work of the governmental agencies were the activities of the Italian welfare and relief societies, the American Clearing House already mentioned, volunteers among the people and Americans present in Italy, and prominently, the efforts and assistance of the American consuls throughout the country, and particularly in the zone of disturbance, who were appealed to first for information regarding the requirements. The details of the amazingly rapid furnishing of food, clothing, blankets, medical supplies and provision for housing the refugees are too voluminous to be given here. Not the smallest portion of the tremendous task was the establishment and refitting of military hospitals to take the place of the hospitals and equipment which had to be abandoned in the hasty retreat, many of which were in the invaded region, and most of which were near the very front at the time the movement began.

The future work of the organization in caring for the refugees and those incapacitated for military duty will be matters of distribution to centers where rehabilitation may be brought about by finding work for those able to work, by proper housing arrangements, recreational activities, looking after health and sanitation, etc. In this work the efforts of the Red Cross will be divided, as in France, into two departments, that relating to the soldiers and that relating to the civilian population. That work is already well in hand and at the time of writing the articles, seven weeks after the retreat, wonderful progress had been made on all these lines. The health of the refugees in all the cities visited was, in view of all the hardships encountered, said to be on the whole very good. Careful inquiry among physicians, officials and relief workers indicated that with few exceptions there was no marked prevalence of digestive, nervous or infectious disease.

NEWS OF THE CANTONMENTS

Twenty-Eight Division, Camp Hancock, Augusta, Ga.

PERSONAL

Mrs. John Fell of Philadelphia and her sister, Miss Randolph, together with Mrs. Ullern, wife of Captain Ullern of the French Mission, are at the Parkridge Inn. They are conducting classes in French for the medical officers of the Twenty-Eighth Division at camp.——Mr. Walter Camp, who has been assisting in the physical education work of the division, has been made a captain.——The base hospital connected with this division has now about forty-five female trained nurses.——Professor Stiles of the Public Health Service is arranging to give the surgeons of the division a lantern demonstration on some of his recent work, including hookworm.

Thirty-First Division, Camp Wheeler, Macon, Ga.

FEB. 9, 1918.

Much to our satisfaction the division surgeons have attended the last two staff meetings of the base hospital.

Last night a practical demonstration of the Carrel-Dakin method with the presentation of illustrative cases was given by Major Lund's staff. This proved to be both interesting and instructive.

The roentgen ray department considers it a day lost when some unusual or interesting condition does not show up. Today it was a fracture of the neck of the scapula.

The basketball court is completed and the baseball grounds will soon be in shape. We expect to turn out championship teams in both sports. There is a rumor that the Georgia Peach, Tyrus Cobb, is to be assigned to our unit.

Major Sailer is convalescent from a submucous resection of the nasal septum.

The number of patients in the hospital has been steadily decreasing for some time, there being under treatment today, 868.

No new cases of meningitis have been admitted for more than twenty-one days, and the number of pneumonia cases continues to decline.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Feb. 1, 1918

1. Annual admission rate per 1,000 (disease only):
   - All Troops 1,713.6
   - National Guard Camps 1,506.2
   - National Army Camps ..... 1,995.
   - Regulars—Divisions and Departments 1,485.7
2. Noneffective rate per 1,000 on day of report:
   - All Troops 51.1
   - National Guard Camps 49.6
   - National Army Camps 55.7
   - Regulars—Divisions and Departments 41.3
3. Camps and Departments showing admission rates for disease higher than average—
   National Guard: Camps Wheeler, Bowie, Doniphan, Beauregard, Shelby, Sevier and Kearny.
   National Army: Camps Travis, Pike, Dodge, Zachary Taylor, Jackson, and Lee.
   Regulars: Divisions and Departments—Central Department and Southeastern Department.
4. Camps and Departments showing noneffective rates higher than average:
   National Guard: Camps Beauregard, Bowie, Wheeler, Shelby, Sevier and Kearny.
   National Army: Camps Travis, Pike, Dodge, Zachary Taylor, Funston (89th), Jackson, Lee and Camp Funston (92d).
   Regulars: Southeastern, Central and Southern Departments.
5. Venereal Diseases:
   Annual admission rate per 1,000—
   - National Guard Camps 60.7
   - National Army Camps 116.4
   - Regulars—Divisions and Departments 73.5

   Camps and Departments having rate above average:
   National Guard: Camps Logan, Doniphan, Wheeler and Bowie.
   National Army: Camps Zachary Taylor, Pike, Gordon and Jackson.
   Department: Southern.
6. Number of cases of pneumonia 795
   Highest number in any one camp (Pike) 64
   Number of cases of meningitis 79
   Highest number in any one camp (Jackson) 19

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING FEB. 1, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet fever	Deaths	Noneffective per 1,000
Wadsworth	15	...	...	27	..	..	...	1	..	2	29.1
Hancock	15	...	...	23	..	..	14	3	..	2	32.0
McClellan	5	...	...	24	..	..	37	2	3	1	38.0
Sevier	19	...	...	23	..	..	9	..	..	6	55.6
Wheeler	36	3	2	45	..	..	...	..	..	10	78.0
Logan	11	...	...	102	..	..	34	..	3	2	33.5
Cody	50	...	1	14	..	..	26	..	..	12	45.2
Doniphan	22	...	...	29	..	..	8	3	1	6	47.1
Bowie	30	...	1	37	..	..	1	2	..	4	78.8
Sheridan	15	...	...	7	..	..	29	1	..	6	32.2
Shelby	12	...	2	27	..	..	1	1	..	2	60.7
Beauregard	23	...	9	22	..	..	...	8	..	8	79.9
Kearny	13	...	...	8	..	..	9	..	14	1	50.0
Devens	7	...	...	19	..	..	19	1	..	2	36.7
Upton	6	...	...	21	..	..	2	..	1	4	31.7
Dix	3	1	...	23	..	..	22	..	6	0	46.4
Meade	17	...	...	43	..	..	19	2	10	7	32.7
Lee	21	...	...	50	..	..	75	1	1	13	65.7
Jackson	17	...	3	53	..	..	15	19	1	4	67.9
Gordon	18	...	...	131	..	..	65	1	..	12	34.3
Sherman	4	...	...	33	..	..	62	1	30	4	42.9
Taylor	30	...	...	285	..	..	23	2	..	2	79.5
Custer	10	...	...	12	..	..	50	1	5	2	44.3
Grant	12	...	...	36	..	..	66	1	12	0	40.5
Pike	64	1	6	195	..	..	20	..	31	19	88.5
Dodge	20	...	...	23	..	..	34	..	11	3	81.5
Funston	11	...	...	8	..	..	11	3	2	3	73.1
Travis	54	...	...	22	..	..	6	4	..	9	98.5
Lewis	8	...	...	15	..	..	18	2	5	3	48.9

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	Regulars, U. S. Army, in U. S. only, 1916*	Regulars in U. S., Week Ending Feb. 1, 1918	National Guard, All Camps, Week Ending Feb. 1, 1918	National Army, All Camps, Week Ending Feb. 1, 1918
Pneumonia	2.59	32.8	42.6	36.1
Dysentery	3.97	0.4	0.4	0.2
Malaria	12.52	0.9	2.3	1.1
Venereal	91.23	73.5	60.7	116.4
Paratyphoid	0.31	0.0	0.0	0.0
Typhoid	0.21	0.0	0.0	0.0
Measles	20.28	135.1	26.2	61.4
Meningitis	0.29	2.9	3.3	4.5
Scarlet fever	0.59	23.3	3.3	12.7

* Enlisted men only, both white and colored.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

To Camp Meade, Annapolis Junction, Md., for duty in connection with the Medical Department of the Army, and on completion *to his proper station,* Col. PERCY E. ASHBURN.

To Camp McClellan, Anniston, Ala., for duty, Col. CHARLES WILLCOX.

To Washington, D. C., Aviation Section, Signal Corps, for duty, Lieut.-Col. SAMUEL M. DE LOFFRE.

To Camp Beauregard, Alexandria, La., as Division Surgeon, Lieut.-Col. LARUS D. CARTER.

To Newport News, Va., for duty, Lieut.-Col. WILLIAM H. SMART.

To Columbus Barracks, Ohio, for duty, Lieut.-Col. HARRY G. HUMPHREYS.

To Lake City, Fla., to inspect and report on properties, and on completion *to his proper station,* Lieut.-Col. JOSEPH Y. PORTER.

To Camp Greene, Charlotte, N. C., to make a special inspection of the Medical Department, and on completion *to his proper station,* Lieut.-Col. CHARLES F. MORSE.

To Fort Riley, Kansas, for duty, Major JOSEPH A. WORTHINGTON.

To Muncie, Ind., to inspect certain properties, and on completion *to his proper station,* Major JOHN R. McKNIGHT.

To Portland, Me., Coast Defenses of Portland, for duty, Capt. WILLIAM L. HASKELL, Lieut. HAROLD M. ALLEN.

To Camp Hancock, Augusta, Ga., for temporary duty, Capt. THEODORE C. FEGLEY.

To Camp Doniphan, Fort Sill, Okla., for duty, Lieut. ARTHUR J. KAMPMEIER.

To Camp Sevier, Greenville, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HASKETT L. CONNER.

To Camp Greene, Charlotte, N. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HAROLD D. ROGERS.

To Fort Totten, N. Y., for duty, Lieut. SETH H. MILES.

To San Antonio, Texas, Kelly Field, with the neuropsychiatric board for the purpose of acting with the board in examining the command in his specialty, Lieut. GORDON F. WILLEY.

To Camp Upton, L. I., N. Y., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, Lieut. HARVEY E. WEBB.

To Camp Wadsworth, Spartansburg, S. C., for duty, Lieut. JOSEPH H. MURPHY.

To San Francisco, Calif., for duty, Lieut. HERMAN G. MAUL.

To Douglas, Ariz., for duty and by letter to the commanding general, El Paso; Texas, Lieut. JAMES McALLISTER.

To Fort Monroe, Va., to make special sanitary inspection, and on completion *to his proper station,* Senior Surgeon JOSEPH H. WHITE.

Honorably discharged, Capt. CHARLES M. SEIVERS, Lieuts. GEORGE F. HOLLER, ROBERT L. BARROW, LOUIS P. LANE, JR., FORD A. BARNES.

Honorably discharged from the Medical Corps, National Guard, on account of physical disability incident to service, Lieut. ISAAC G. COOK.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Army Medical School, Washington, D. C., for instruction, Lieut. JOHN T. CALLAWAY, Birmingham.

To Camp Wheeler, Macon, Ga., for temporary duty, from New York City, Lieut. FRANCIS M. INGE, Mobile.

To Fort Oglethorpe, for instruction, Capt. JOHN McI. WHITESIDE, Anniston; Lieut. WILLIAM R. ROUSSEAU, Huntsville.

To Montgomery, Ala., Taylor, Field, Signal Corps, Aviation School, for duty, Lieut. GEORGE A. CRYER, Anniston.

To New York City, Roosevelt Hospital, for instruction, and on completion *to Camp Upton,* for duty, from Fort Oglethorpe, Lieut. JOSEPH M. WELDON, Tallassee.

To Philadelphia, Pa., Evans Dental Institute, for instruction, and on completion *to his proper station,* from Camp Gordon, Lieut. ANDREW C. CAMERON, Birmingham.

To San Antonio, Texas, Kelly Field, to examine the command in his specialty, from Camp Travis, Lieut. ROBERT H. HOWARD, Tuskegee.

Honorably discharged, on account of physical disability which existed prior to his entrance into the service, Lieut. EDWARD DAY, Orville; Corps, WILLIAM McMAHAN BOGART, Stevenson.

Arizona

To Camp Cody, Deming, N. M., for duty, Lieut. AUSTIN C. WRIGHT, Ajo.

To Fort Oglethorpe, for instruction, from Paltimore, Md., Lieut. HILARY D. KETCHERSIDE, Yuma.

Arkansas

To San Antonio, Texas., Kelly Field, Aviation Section, Signal Corps, for duty, Lieuts. MAX O. USREY, Blythesville; JOSEPH M. CLARK, Furth; JAMES M. BEST, Monticello; JAMES F. HAYS, Russellville; OSCAR A. JAMISON, Tuckerman; THOMAS E. GRAY, Winslow.

Honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. ALEXANDER E. HARRIS, Little Rock.

California

To Camp Cody, Deming, N. M., for duty, from Camp Kearny, Major WALTER V. BREM, Los Angeles.

To Camp Kearny, Linda Vista, Calif., for temporary duty, Capt. RALPH HAGAN, Los Angeles.

To Camp Meade, Annapolis Junction, Md., on completion of his course at New York City, Major ALANSON WEEKS, San Francisco.

To Camp Stanley, Leon Springs, Texas, as orthopedic surgeon, and as consultant in such cases as may be referred to him by proper authority, from Camp Meade, Capt. JOHN M. HENCH, Pacific Grove.

To Camp Travis, San Antonio, Texas, for duty, from San Antonio, Capt. HENRY ABRAHAM, San Francisco.

To Fort Oglethorpe, for duty, from Allentown, Pa., Major LAVIN POWELL, Oakland.

To Fort Riley, for instruction, Lieut. ROBERT A. POWERS, Oreville.

To Philadelphia, Pa., Evans Dental Institute, for instruction, from Camp Fremont, Major WILLIAM A. BRYANT, San Francisco.

To Western Department, for duty, Lieuts. CHARLES A. MACKEY, Oakland; ORRIS R. MYERS, Sacramento.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. ROBERT M. JONES, JR., Fresno.

Canal Zone

To Camp Hancock, Augusta, Ga., Motor Mechanics Regiments, from Washington, D. C., Capt. EDWARD P. BEVERLY, Balboa.

Colorado

To Camp Gordon, Atlanta, Ga., for duty, from Camp Gordon, Capt. WILL H. SWAN, Colorado Springs.

To Fort Oglethorpe, for instruction, Lieut. JOHN E. HOWARD, Denver.

To Fort Riley, for instruction, Lieut. WALTER K. HOTCHKISS, Erighton.

To New York City, Neurological Institute, for intensive training, from Fort Oglethorpe, Capt. CYRUS L. PERSHING, Denver.

To Washington, D. C., for consultation, from San Antonio, Capt. ALEXIUS M. FORSTER Colorado Springs.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Capt. CHARLES E. ELLIOTT, Victor.

Connecticut

To Camp Sheridan, Montgomery, Ala., on completion of his course at New York City, Capt. DANIEL G. PATTERSON, Bridgeport.

To Mineola, L. I., N. Y., Hazelhurst Field, Aviation Section, Signal Corps, for duty, Lieut. EUGENE M. BLAKE, New Haven.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Capt. JOHN E. GRIGGS, Hartford; Lieut. FRANK J. RONAYNE, Hartford. Fort duty, from Fort Oglethorpe, Lieut. ALEXANDER B. TIMM, New Haven.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Capt. AUGUSTIN A. CRANE, Waterbury.

Delaware

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. RICHARD R. TYBOUT, New Castle.

District of Columbia

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. HARRY A. BISHOP, Washington.

To Camp Wadsworth, Spartanburg, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, from Camp Meade, Lieut. JOEL A. TILTON, Washington.

To Fort Oglethorpe for instruction, from Baltimore, Lieuts. CLAUDE C. CAYLOR, JAMES P. KERBY, Washington.

To Rockefeller Institute, N. Y., for instruction, and on completion *to Camp Dodge,* Des Moines, Iowa, for duty, from Fort Riley, Capt. FRANCIS M. MUNSON, Washington.

Florida

To Arcadia, Fla., Dorr Field, Signal Corps, Aviation School, for duty, Lieut. ROBERT E. GILBERT, Monticello.

To Camp Wheeler, Macon, Ga., for duty, from Camp Wheeler, Lieut. WILLIS H. WATSON, Lakeland.

To Fort Oglethorpe, for instruction, Capt. JAMES H. HARPER, Fort Myers.

To his home and honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. WILLIAM W. HOGGATT, Bradentown.

Georgia

To Arcadia, Fla., Carlstrom Field, Signal Corps, Aviation School, for duty, Lieuts. DAN H. DUPREE, Athens; JOHN W. EDMONDSON, Dublin; WARREN E. BENSON, Marietta.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. JOHN W. DURDEN, Oak Park.

To Camp Gordon, Atlanta, Ga., for duty, Lieuts. GROVER C. COLE, MURDOCK S. EQUEN, Atlanta.

To Camp Sherman, Chillicothe, Ohio, as member of a board for the purpose of examining the command for nervous and mental diseases, from Philadelphia, Lieut. MALCOLM D. CLAYTON, Milledgeville.

To Fort Totten, N. Y., for duty, from Fort Totten, Lieut. ROBERT F. McLEOD, Pineview.

To Governor's Island, N. Y., Coast Defenses of Southern New York, from Fort Oglethorpe, Lieut. SIGE EHRLICH, Bainbridge.

Hawaii

To Cape May, N. J., for duty, on completion of his present leave from Camp Kearny, Major JOHN B. LUDY, Honolulu.

To Governor of Hawaii for duty as medical advisor, Major CHARLES B. COOPER, Honolulu.

Illinois

To Baltimore, Md., Hopkins Medical School, for temporary duty, from Fort McPherson, Major DEAN D. LEWIS, Chicago.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. EMIL A. SCHLAGETER, Chicago.

To Camp Greene, Charlotte, N. C., for duty, from Fort Oglethorpe, Capt. THOMAS S. CROWE, Lieut. FRANZ H. HARMS, Chicago.

To Camp Hancock, Augusta, Ga., for temporary duty, Lieut. WILLIAM J. RIDEOUT, Freeport.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp Travis, Capt. HERMAN H. BASSLER, Chicago.

To Chicago, Ill., for orthopedic instruction, Lieut. SAMUEL L. STEVENS, Dalton City.

To Fairfield; Ohio, Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Lieut. PETER G. PETERSON, Chicago.

To Fort Des Moines, Iowa, for duty, Lieut. RICHARD J. BEDFORD, Dahinda.

To Fort McPherson, Ga., for duty, Lieut. FRANCIS D. FLETCHER, Springfield; from Fort Riley, Lieut. EDWIN J. BARNETT, Chicago.

To Fort Oglethorpe, for instruction, Lieuts. CLINTON L. MONTGOMERY, Blue Mound; WILBER P. FRAZIER, Carthage.

To Fort Riley, for instruction, Capt. GEORGE A. DARMER, Aurora; Lieut. RANDOLPH C. STITES, Chicago; from Camp Grant, Lieut. ROYAL W. DUNHAM, Chicago. For temporary duty, Lieut. GILBERT E. BRERETON, Chicago; from Camp Doniphan, Lieut. CLIFFORD W. WELLS, Chicago.

To Milwaukee, Wis., Milwaukee County Hospital, for duty, Capt. HERBERT WALKER, Chicago.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Capts. CLARENCE U. GEYER, Aurora; HUGH L. MARSHALL, Stronghurst; Lieut. ARTHUR L. MUREN, Patterson.

To Rochester, Minn., Mayo Clinic, for instruction and on completion *to Camp Dodge,* for duty, Lieut. JOHN O'CONNELL, Chicago.

To Rock Island, Ill., for duty, and on completion *to his proper station,* Major PAUL B. MAGNUSON, Chicago.

To San Antonio, Texas, Kelly Field, with the Examining Board, from Douglas, Ariz., Capt. THOMAS F. NEIL, Moline.

To Washington, D. C., Surgeon-General's Office, Lieut. WILLIAM W. GAILEY, Bloomington; from Fort Sheridan, Lieut. WILLIAM A. CLARK, Chicago.

To their homes and honorably discharged, Capt. GEORGE M. FRENCH, Springfield; on account of physical disability which existed prior to entrance into the service, Lieuts. EDWARD E. HANSON, Chicago; ALONZO M. EDWARDS, Marion.

Indiana

To Ann Arbor, Mich., Psychopathic Hospital, for intensive training, Lieut. CLYDE C. BITLER, Newcastle.

To Camp Grant, Rockford, Ill., for instruction, Capt. NOAH W. CLARK, Rossville; Lieuts. ROYAL W. DUNHAM, Angola; DORSEY D. METCALF, Fort Wayne.

To Fort Bliss, Texas, for duty, from Fort Riley, Lieut. IRA E. BOWMAN, Odon.

To Fort Des Moines, Iowa, for duty, Lieut. ARTHUR L. LEEDS, Michigan City.

To Fort Oglethorpe, for instruction, Lieuts. SAM W. HOOKE, Noblesville; DUFFIELD D. MacGILLIVRAY, Pine Village; ADAM P. PANEK, South Bend.

To Fort Riley, for instruction, from Camp Grant, Capt. NOAH W. CLARK, Rossville; Lieut. FORSEY D. METCALF, Fort Wayne.

To Governor's Island, N. Y., Coast Defenses for duty, from Fort Oglethorpe, Capt. GEORGE T. WILLIAMS, Crawfordsville.

To Portland, Me., Coast Defenses from Fort Oglethorpe, Lieut. HENRY W. IRWIN, Indianapolis.

Iowa

To Army Medical School, Washington, D. C., for instruction, Lieut. HENRY C. ALLEN, Independence.

To Camp Grant, Rockford, Ill., for temporary duty, from New York City, Lieut. FREDERICK W. SALLANDER, Fort Madison.

To Chicago, Ill., Presbyterian Hospital, for instruction, on completion *to Camp Sherman,* for duty, from Fort Riley, Capt. HERBERT W. PLUMMER, Lime Springs.

To Dallas, Texas, State Fair Grounds, from Fort Riley, Capt. CHARLES H. COGSWELL, Cedar Rapids.

To Fort Des Moines, Iowa, for duty, Capt. THOMAS E. McCAUGHAN, Ireton; Lieut. EVART C. HARTMAN, Algona; FRANK L. GRIFFIN, Baldwin; MARTIN T. BREWER, De Soto; JOHN J. BOWES, Livermore; JAMES F. BATTIN, Marshalltown; HARRY E. CARVER, Rose Hill.

To Fort Leavenworth, Kansas, Department Laboratory from Camp Pike, Major GUTHRIE McCONNELL, Waterloo.

To Rockefeller Institute, N. Y., for instruction, and on completion *to Camp Sherman,* for duty, from Fort Riley, Capt. GEORGE A. PLUMMER, Cresco.

Kansas

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Riley, Lieut. KIRK P. MASON, Cawker City.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Camp Dodge, Lieut. FOY J. M. ERNEST, Topeka.

To Fort Des Moines, Iowa, for duty, from Camp Dodge, Lieut. CHARLES M. FITZPATRICK, Salina.

To Fort Oglethorpe, for instruction, from Fort Monroe, Lieut. JACOB H. HALDEMAN, Paola.

To Fort Riley, for duty, from Fort Riley, Capt. CHRISTIAN H. KOENTZ, Onaga.

Kentucky

To Camp Lee, Petersburg, Va., for duty, Lieut. MILTON B. COHEN, Louisville.

To Fort Oglethorpe, for instruction, Lieut. JUDSON P. BOULWARL, Louisville.

To New York City, Neurological Institute, for instruction, Capt. OSCAR E. BLOCH, Louisville.

To Philadelphia, Pa., Evans Dental Institute, for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. WILLIAM T. BRUNER, Louisville.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Sherman,* for duty, Capt. ELMER L. HENDERSON, Louisville.

To Washington, D. C., for duty, Lieut. ERMIN L. RAY, Louisville.

Honorably discharged, Capt. EDWIN T. BRUCE, Louisville.

Louisiana

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. EDWARD E. ARCHIBALD, Alberta.

To Camp Travis, Fort Sam Houston, Texas, for duty, on completion of his instruction at New York City, Capt. WILLIAM M. PERKINS, New Orleans.

To Fort Oglethorpe for instruction, Capt. ARTHUR R. CHOPPIN, Alexandria; Lieut. DELANE S. CALHOUN, Ruston.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to Camp Doniphan,* Fort Sill, Okla. For duty, from Fort Oglethorpe, Lieut. ALBERT C. JACKSON, New Orleans.

To San Antonio, Texas, Kelly Field, Aviation Section, Signal Corps, for duty, Lieut. EDWARD B. PRIES, New Orleans.

Maine

To Fort Oglethorpe, for instruction, Capt. HARRY F. MORIN, Bath.

To his home and honorably discharged, on account of physical disability which existed prior to his entrance into the service, Capt. HARVEY H. ROBERTS, South Poland.

Maryland

To Camp McClellan, Anniston, Ala., for duty, from Camp Devens, Lieut. GEORGE B. WISLOCKI, Baltimore.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. ERNEST M. G. REIGER, Baltimore.

To Edgewood, Md., for duty, from Fort McHenry, Lieut. JOHN F. LUTZ, Baltimore.

To Fort Oglethorpe for instruction, Lieuts. GIDEON TIMBERLAKE, Baltimore; NEAL F. TWIGG, Cumberland; from Baltimore, Lieut. HUMPHREY D. WOLFE, Baltimore; from Fort Monroe, Lieut. ISRAEL J. FEINGLOS, Baltimore.

To Newport News, Va., for duty, Lieuts. PAUL N. FLEMING, Hagerstown; HENRY MERKEL, Irvington.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieut. WILMER M. PRIEST, North East.

To the inactive list, from Baltimore, Major FREDERICK H. BAETJER, Baltimore.

Massachusetts

To Army Medical School, Washington, D. C., to give instruction in orthopedic surgery, and on completion *to his proper station,* from Boston, Major ROBERT W. LOVETT, Boston.

To Boston, Mass., Charitable Eye and Ear Infirmary, Aviation Section, Signal Corps, for duty, from Boston, Lieut. EDWARD F. W. BARTOL, Molton.

To Camp Devens, Ayer, Mass., for temporary duty, Major ELLIOTT P. JOSLIN, Boston; Lieut. HOLLIS G. BATSHELDER, Dedham.

To Camp Grant, Rockford, Ill., for instruction, Lieut. WILLIAM C. JENSEN, Worcester.

To Camp MacArthur, Waco, Texas, for duty, from Camp Hancock, Major CHARLES DUDLEY, Kingston.

To Camp Sherman, Chillicothe, Ohio, as a member of a board to examine the command for nervous and mental diseases, from Camp Sherman, Capts. HENRY L. STICK, Baldewinville; EDWARD S. ABBOT, Waverly.

To Fort Oglethorpe, for instruction, Capt. WESLEY T. LEE, Boston; Lieuts. HENRY A. R. KRAUTMAN, Boston; HAROLD W. RIPLEY, Braintree; ROLAND O. PARRIS, Brookline; LOUIS F. SALERNE, East Boston; MIRKE L. ALEXANDER, Orange.

To Fort Riley, for instruction, from Camp Grant, Lieut. WILLIAM C. JENSEN, Worcester.

To New Orleans, La., for duty, and upon completion *to Fort Oglethorpe,* to confer with the commandant regarding the establishment of a course of training in Military Orthopedic Surgery, and on completion, *to his proper station,* Major ELLIOTT C. BRACKET, Boston.

To New York City, Neurological Institute, for intensive training, from Camp Devens, Lieut. DANIEL J. GENNELLY, Fall River.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Beauregard, Capt. CHARLES F. CANEDY, Greenfield; on completion *to Camp Dodge,* for duty, Lieut. JEROME J. McCAFFREY, Attleboro.

To the inactive list of the Medical Reserve Corps, Capt. ISAAC S. F. DODD, Pittsfield.

Michigan

To Camp Wheeler, Macon, Ga., for duty, from Camp Wheeler, Lieut. ALBERT H. ROSS, Battle Creek.

To Fort Oglethorpe, for instruction, Lieut. RICHARD H. JAERS, Detroit.

To Fort Riley, for temporary duty, Lieut. GEORGE D. TREADGOLD, Port Huron.

To Mount Clemens, Mich., Selfridge Field, Aviation Section, Signal Corps, for duty, Lieuts. ARA B. HEWES, Adrian; FRANK C. ANDERSON, Detroit.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Capt. NELSON MAC ARTHUR, Detroit.

Honorably discharged from the Medical Reserve Corps, Lieut. CHARLES F. KUHN, Detroit.

Minnesota

To Camp Dodge, Des Moines, Iowa, and *Fort Riley,* for inspection, and on completion *to his proper station,* from Rochester, Minn., Major LOUIS B. WILSON, Rochester Aviation Section, Signal Corps; as junior member of Physical Examining Unit, Medical Member of Examining Board and Recruiting Officer, Lieut. WALTER D. LEE, Madison.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. CHARLES B. DRAKE, St. Paul.

To Camp MacArthur, Waco, Texas, Aviation Mobilization Camp, for duty, from Rantoul, Ill., Capt. CHESTER M. CLARK, Duluth.

To Camp Taylor, Louisville, Ky., for temporary duty, Lieut. ALBERT F. RYAN, Hibing.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to Camp Sherman,* for duty, Lieut. JOHN J. DONOVAN, Litchfield.

To Del Rio, Texas, for duty, from Fort Riley, Lieut. ALBERT M. LARSON, St. Paul.

To Fairfield, Ohio, Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Lieut. REUBEN A. JOHNSON, Minneapolis.

To Fort Leavenworth, Kansas, for duty, Lieut. HENRY ODLAND, Minneapolis.

To Fort Oglethorpe and Fort McPherson, Ga., for inspection, and on completion *to his home and to the inactive list* of the Medical Reserve Corps, Major CHARLES H. MAYO, Rochester.

To Fort Riley, for temporary duty, Capt. GUSTAV H. LUEDTGE, Fairmont. For instruction, Lieut. JOSEPH MOSES, Jr., New London.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. PAUL W. WIPPERMAN, Minneapolis.

To Oklahoma City, Okla., for instruction, from Camp Pike, Capt. ROBERT H. MONAHAN, International Falls.

To his home and honorably discharged from the Medical Reserve Corps, on account of physical disability which existed prior to his entrance into the service, Lieut. LYNN J. WALKER, Wykoff.

Mississippi

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieuts. DUDLEY R. MOORE, Cockrum; GEORGE R. STORM, Philipp.

To Del Rio, Texas, for duty, from Fort Riley, Lieut. CLEVELAND DAVID, Morgan City.

To Fort Oglethorpe, for instruction, Lieut. CHARLES H. HARRISON, Philadelphia.

To Rochester, N. Y., for duty, from Camp Pike, Capt. ERSKINE P. ODENEAL, Biloxi.

Missouri

To Camp A. A. Humphreys, Accotink, Va., as sanitary inspector, from Fort Riley, Capt. EDWARD S. SMITH, Macon.

To Camp Grant, Rockford, Ill., for instruction, Lieut. JACOB J. KENNEDY, Frankford.

To Camp Lee, Petersburg, Va., to inspect surgical equipment, and upon completion *to his proper station,* Major FREDERICK W. BAILEY, St. Louis.

To Fort Monroe, Va., for duty, Lieut. ALOIS E. TUREK, St. Louis.

To Fort Riley for instruction, Lieuts. JOHN H. MARTYN, Cuba; ELMER E. WALDO, Hannibal; ERNEST F. HARRISON, Kennett; ELIJAH Y. PARE, Leeton; HENRY M. STRACHAN St. Louis; from Camp Grant, JACOB J. KENNEDY, Frankford.

To Kansas City, Mo., Aviation Section, Signal Corps, for duty, Lieut. SAM E. ROBERTS, Kansas City.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieuts. REX L. DIVELY, SAMUEL H. SNIDER, Kansas City; JAMIE C. THOMPSON, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Sheridan, Lieut. JOHN R. ELLIOTT, Clarksdale.

To Washington, D. C., Surgeon-General's office, Capt. GREENE D. McCALL, Fulton.

Montana

To Del Rio, Texas, for duty, from Fort Riley, Capt. SPIES V. WILKING, Butte.

To New York City, Bellevue Hospital, for instruction, and on completion, *to Camp Lee,* for duty, from Fort Oglethorpe, Lieut. FERRIS L. ARNOLD, Billings.

Nebraska

To Camp Dodge, Des Moines, Iowa, for duty, Lieut. THOMAS E. ATKINSON, Muhlen.

To Fort Oglethorpe, for instruction, from Fort Monroe, Capt. WILLIAM N. ANDERSON, Omaha.

To Fort Riley for duty as instructor, from Fort Riley, Major JOHN P. LORD, Omaha; Lieut. WESLEY C. BECKER, Papillion.

New Hampshire

To Camp Wheeler, Macon, Ga., for assignment to duty, from Camp Wheeler, Major HENRY L. STICKNEY, Manchester.

New Jersey

To Camp Lee, Petersburg, Va., for duty, Lieut. AUGUSTUS L. L. BAKER, Dover; from Columbus Barracks, Lieut. STERNE MORSE, Boonton; from New York City, Lieut. AARON G. BALDWIN, East Orange.

To Camp Wheeler, Macon, Ga., for temporary duty, Capt. JESSE D. LIPPINCOTT, Newark.

To Fort Oglethorpe for instruction, Lieuts. THOMAS W. PHILLIPS, Camden; HERMAN L. SHEEHE, Jersey City; JAMES M. TORRENCE, Phillipsburg.

To Milwaukee, Wis., Milwaukee County Hospital, for duty, from Columbus Barracks, Lieut. STEPHEN CAMPBELL, Woodbury.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Riley, Lieut. NEIL C. STEVENS, Morristown.

New Mexico

To Fort Bayard, N. M., for duty, Lieut. EMMER P. DAVID, Tyrone.

New York

To Army Medical School, Washington, D. C., for instruction, Capt. LESLIE M. WILKINS, Dexter; Lieuts. HENRY B. BOLEY, Brooklyn; JAMES P. FITZGERALD, Clayton; CHARLES G. IRISH, Lancaster; MALCOLM TURNER MUNKITTRICK, WILLIAM F. WIGGINS, New York City; WILLIAM M. EDMONDS, Tonawanda.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Capt. WILLIS S. COBB, Corning.

To Camp Bowie, Fort Worth, Texas, as divisional psychiatrist, from San Antonio, Lieut. JOHN J. HUGHES, Mount Vernon.

To Camp Custer, Battle Creek, Mich., for temporary duty, from Camp Jackson, Lieut. LEWIS H. TAFT, New York City.

To Camp Dix, Wrightstown, N. J., for temporary duty, on completion of his course at New York City, Major MARTIN B. TINKER, Ithaca. For duty, Capt. EDWARD H. PERSHING, Woodmore, Long Island.

To Camp Meade, Annapolis Junction, Md., for temporary duty, from New York City, Lieut. HENRY M. THOMAS, New York City.

To Camp Sevier, Greenville, S. C., Aviation Mobilization Camp, for duty, Lieut. WILLIAM H. TAYLOR, Brooklyn.

To Camp Sherman, Chillicothe, Ohio, from Camp Sherman, Capt. REUBEN J. HELD, New York City. As a member of a board for the purpose of examining the command for nervous and mental diseases, from Ann Arbor, Capt. REEVE TURNER, New York City.

To Fort Oglethorpe for instruction, Capt. JAMES P. HUNT, New York City; Lieuts. ARTHUR J. O'CONNER, Brooklyn; HARRY E. WHEELOCK, Jamestown; HERMAN LEVISON, JOHN L. SENGSTACK, New York City; from Fort Oglethorpe, Lieut. LOUIS GOLD, Brooklyn.

To Governor's Island, N. Y., Coast Defenses, from Fort Oglethorpe, Lieut. CARSON C. FAULKNER, Arena.

To Hoboken, N. J., for duty, from Camp Cody, Lieut. HARRY C. SALTZSTEIN, New York City.

To Lakewood, N. J., for duty, from Camp Upton, Lieut. GUSTAVE A. BRAUN, Brooklyn.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Fort Oglethorpe, Lieuts. JACOB H. HIRSCH, Haverstraw; HERMAN B. PHILIPS, MAURICE M. POMERANZ, New York City; from Fort Riley, ORVILLE B. CHANDLER, Poughkeepsie. For duty, Lieuts. FREDERICK C. KELLER, LAWRENCE J. OSBORNE, New York City; from Fort Oglethorpe, Lieuts. ROLAND P. BLYTHE, GEORGE A. KOENIG, BERNARD L. ROBINS, CORNELIUS J. TYSON, JOHN H. WYSKOFF, New York City; from Fort Riley, Lieuts. CHARLES C. DARLINGTON, CHARLES H. NAMMACK, New York City. For intensive training, Lieut. BERTRAM P. BROWN, Brooklyn. Neurological Institute for instruction, Lieut. FREDERICK P. SCHENKELBERGER, Collins; for intensive training, Lieut. ELIAS C. FISCHBEIN, Senyea. Roosevelt Hospital for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. WILLIAM L. GROGAN, Rome.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Lieut. OTTO C. PICKHARDT, New York City.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Dodge, Lieut. ALOYSIUS M. MULHOLLAND, New York City.

To Rockefeller Institute, N. Y., for instruction, and on completion *to Army Medical School,* for duty, Lieut. ADOLPH E. VOEGELIN, Brooklyn; on completion *to Philadelphia* for further instruction and on completion *to Camp Jackson* for temporary duty, Lieut. HAROLD K. BELL, Brooklyn; on completion *to Walter Reed General Hospital* for duty, Lieut. JAMES L. FAGAN, New York City.

To San Antonio, Texas, Kelly Field, to examine command in his specialty, from Camp Travis, Lieut. AUGUSTUS B. DYKMAN, Riverdale.

To San Francisco, Calif., Letterman General Hospital, from Portland Ranch, Lieut. RAE W. WHIDDEN, New York City.

To Washington, D. C., Surgeon-General's office, Major ALFRED E. COHN, New York City. Aviation Section, Signal Corps, Medical Research Board, Aviation Section, Signal Corps, from Chanute Field, and on completion *to his sick leave,* Capt. CONRAD BERENS, Jr., New York City.

To his home and to the inactive list of the Medical Reserve Corps, Lieut. CHARLES GOTTLIEB, New York City.

To his home and honorably discharged from the Medical Reserve Corps, on account of physical disability which existed prior to his entrance into the service, Capt. JAMES E. HOLDEN, Collins; Lieuts. EDWARD C. EHLERS, LYMAN J. SPALDING, New York City.

North Carolina

To Camp Hancock, Augusta, Ga., for duty, Lieut. FREDERICK H. LINTHICUM, Charlotte.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Lieuts. ALTON C. CAMPBELL, Raleigh; CARL M. VAN POOLE, Salisbury.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. GEORGE F. BULLARD, Elizabethtown.

To Fort Oglethorpe, for instruction, from Fort Monroe, Capt. THOMPSON FRAZER, Asheville. For instruction, Capt. ARTHUR T. PRITCHARD, Asheville; Lieut. LUCIUS V. DUNLAP, Albemarle.

To New York City, Cornell Medical College, for instruction in military roentgenology, from Baltimore, Lieut. FRANK R. RUFF, Duke.

To their homes and honorably discharged from the Medical Reserve Corps on account of physical disability which existed prior to entrance into the service, Lieuts. ISRAEL W. MAYERBERG, Selma; CHARLES T. ROEBUCK, Williamston.

North Dakota

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, on completion *to his course at New York City,* Capt. JAMES P. AYLEN, Fargo.

To Rantoul, Ill., Aviation Section, Signal Corps, for duty, Lieut. KNUTE O. KNUDSON, Glenburn.

Ohio

To Army Medical School, Washington, D. C., for instruction, Lieuts. HENRY R. BAREMORE, Jr., ROY B. LUCE, Akron; WILLIAM E. DWYER, PAUL F. FINCH, Cleveland; WILLIAM H. MORGAN,

Columbus; ALBERT W. McCALLY, Dayton; NATHAN C. HATFIELD, Fostoria; FRANK S. VAN DYKE, Hammondsville; CHARLES A. S. WILLIAMS, Marietta; VICTOR R. TURNER, Newark; JAMES D. COUPLAND, Norwalk; ALFRED B. MILLS, Portsmouth. For duty, Lieut. FREDERICK A. EULER, Cleveland.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. WILLIAM H. PARKER, Wellston.

To Camp Sherman, Chillicothe, Ohio, as Division Psychiatrist, and to examine the command for mental and nervous diseases, from Camp Sherman, Lieut. JOHN D. O'BRIEN, Canton.

To Camp Wadsworth, Spartanburg, S. C., as orthopedic surgeon, and as consultant in such orthopedic cases as may be referred to him by proper authority, from Camp Meade, Lieut. ALLEN N. WISELY, Ada.

To Dayton, Ohio, McCook Field, Aviation Section, Signal Corps, for duty, Lieuts. JAMES W. ALLBRITAIN, KENNETH A. CLOUSE, PAUL A. DAVIS, Columbus; ARNO E. BOHM, Montville; REX W. BEARD, Pioneer.

To Fort Oglethorpe, for instruction, Capt. THOMAS FOSTER, Wooster; Lieuts. HAROLD F. KOPPE, Logan; FRANCIS W. THOMAS, Piqua; from Garen City, Lieut. RUDOLPH S. REICH, Cleveland.

To Milwaukee, Wis., Milwaukee County Hospital, for duty, from Columbus Barracks, Capt. JOHN W. MEANS, Columbus.

To Philadelphia, Pa., Evans Dental Institute, for instruction, Capt. SIDNEY D. FOSTER, Toledo; on completion *to his proper station,* from Columbus Barracks, Lieut. EDMUND R. BRUSH, Zanesville.

To Rochester, Minn., Mayo Clinic, for instruction and on completion to Camp Doniphan, for duty, Lieut. CLARENCE G. BOZMAN, Hebron.

To Rockefeller Institute, N. Y., for instruction, and on completion to Camp Wadsworth, for duty, from Columbus Barracks, Capt. SYLVESTER J. GOODMAN, Columbus.

To Takoma Park, Washington, D. C., for temporary duty, from Columbus Barracks, Major FRANK WINDERS, Columbus.

Oklahoma

To Camp Doniphan, Fort Sill, Okla., for duty, Lieut. WILLIAM W. D. AKERS, Ada; from Fort Riley, Lieut. HARL F. VANDEVER, Lahoma.

To Camp Pike, Little Rock, Ark., for duty, from Fort Sill, Lieut. WILLIAM R. BARRY, Bradley.

To Dallas, Texas, Love Field, Signal Corps, Aviation School, for duty, Lieuts. LEVI MURRAY, Milfray; GROVER C. MOORE, Wagoner.

To Fort Bliss, Texas, headquarters of the military police, from Fort Riley, Lieut. WILLIAM W. BRODIE, Tulsa.

To Fort Leavenworth, Kan., for duty, from Camp Doniphan, Capt. BENJAMIN H. BROWN, Muskogee.

To Fort Oglethorpe for instruction, Lieut. JAMES E. ADAMS, Chandler.

To Fort Riley, for instruction, Lieuts. ADELBERT H. BENSON, Faxon; ARTHUR G. HUNT, Howe; GUY P. McNAUGHTON, Miami.

To San Antonio, Kelly Field, Aviation Section, Signal Corps, for duty, Capt. JESSE G. MARSHALL, Canton; Lieuts. MILES L. LEWIS, Ada; MILTON H. EDENS, Anadarke; EDWARD L. MILLER, Grainola; WILLIAM C. FASHEE, Grandfield; HENRY C. LLOYD, Hobart; WALDO B. M. B. NEWELL, Hunter; ESLEY E. LAWSON, Oakwood; THOMAS L. LAUDERRALE, Oklahoma City.

Oregon

To Portland, Ore., Aviation Section, Signal Corps, for duty with that unit, and as medical member of examining board and recruiting officer, Capt. JOSEPH L. McCOOL, Portland.

Pennsylvania

To Army Medical School, Washington, D. C., for instruction, Lieuts. MICHAEL G. DEWEY, Ashland; EDWARD E. MARSH, Centralis; A. BOYNTON NEVLING, Clearfield; BARNETT H. COOPER, Glen Lyon; RICHARD YOFFE, Harrisburg; FRANKLIN C. BRUSH, WILLIAM H. STONER, SYDNEY L. WINGRADE, Philadelphia; ROBERT E. BARTON, Pine Grove; ABRAM V. HICKS, JOHN A. LOGAN, JOHN L. STEFFY, Pittsburgh; JAMES CLINTON HAWKINS, McKees Rocks; WILLIAM W. WILKINSON, Meadville; ROBERT J. FLYNN, Scranton; ARTHUR W. THOMAS, Waynesboro; AUSTIN L. CORT, Wilson; GEORGE W. MELLON, Woodlawn.

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieuts. JESSE H. SWICK, Beaver Falls; WILLIAM H. ANNESLEY, Philadelphia.

To Camp Beauregard, Alexandria, La., for temporary duty, on completion of his course at New York City, Capt. WILLIAM C. HEISEY, McKeesport.

To Camp Bowie, Fort Worth, Texas, for duty, Lieuts. JOHN P. KENNEDY, JOHN M. WELCH, Philadelphia.

To Camp Dix, Wrightstown, N. J., for duty, from New York City, Capt. PERCY DELONG, Philadelphia.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, from Philadelphia, Major CHARLES A. E. CODMAN, Philadelphia. For temporary duty, Lieut. MORRIS H. TINDALL, Philadelphia.

To Camp Greene, Charlotte, N. C., for duty, from Camp Greene, Lieut. JOHN W. BOGGS, Philadelphia; from Fort Oglethorpe, Lieut. JOHN J. DONOHUE, Frackville.

To Camp Hancock, Augusta, Ga., for temporary duty, Capt. CHARLES H. WEBER, Philadelphia.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. MARLEY G. ALBRIGHT, Philadelphia.

To Camp Lee, Petersburg, Va., to inspect orthopedic work being conducted at that camp, and on completion *to his proper station,* Major JAMES T. RUGH, Philadelphia. For duty, Lieuts. JAMES R. ST. CLAIR, Alexandria; CLAUDE E. SNYDER, Altoona; NATHANIEL W. WINKELMAN, Bridgeville; FRANK C. WILLARD, Clarendon; PERRY C. SMITH, New Brighton; REUBEN H. PEARLMAN, Pittsburgh; HARRY M. KRAEMER, Scranton; CHARLES H. SILMAN, St. Mary's; from Fort Oglethorpe, Lieut. FRED B. WILSON, Beaver.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. JOHN W. CONRAD, Philadelphia.

To Camp Pike, Little Rock, Ark., for examining the command, from Camp Sevier, Lieut. EDWIN H. ERNSY, Philadelphia.

To Fort Oglethorpe for instruction, Capts. ESTES PAINE, Clifton Heights; FREDERICK B. HARDING, Tamaqua; Lieuts. WAYNE L. SNYDER, Brooksville; FRANK C. PRATT, Fredericksburg; JAMES A. McCRACKEN, Norristown; DEFORREST BALLOU, JR., Philadelphia; ROBERT J. CAMPBELL, Pittsburgh; JACOB W. E. ELLENBERGER, Wilkinsburg; from Baltimore, Lieut. JOHN H. BENNETT, York; from Fort Monroe, Lieut. WILLIAM H. HERR, Lancaster.

To Governor's Island, N. Y., Coast Defenses, from Fort Oglethorpe, Lieut. J. MERLE EVERWINE, Clymer.

To Newport News, Va., for duty, Lieuts. FREDERICK W. BYROD, Oberlin; STANLEY P. REIMANN, Philadelphia; FRED C. LARIMORE, Pittsburgh; ROBERT A. KNOX, Washington.

To New York City, Cornell Medical School, for instruction in military roentgenology, from Camp Meade, Lieut. THOMAS M. McMILLAN, JR., Philadelphia. Neurological Institute for instruction, Lieuts. HOWARD H. HAMMAN, Greensburg; EDWARD P. CLARK, Pittsburgh; SIDNEY KALLAWAY, Shamokin.

To Philadelphia, Evans Dental Institute, for instruction, Lieut. FRANCIS S. CHAMBERS, Mt. Airy, Philadelphia; on completion *to his proper station,* from Camp Taylor, Lieut. HOMER P. PROWITT, Washington.

To Portland, Me., Coast Defenses, from Fort Oglethorpe, Lieut. JOHN W. MANN, Pittsburgh.

To Washington, D. C., Surgeon-General's Office, from Camp Lee, Lieut. WILLIAM J. EZICKSON, Philadelphia.

South Carolina

To Army Medical School, Washington, D. C., for instruction, Lieut. SAMUEL E. WHEELER, Columbia.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Lieuts. HARVEY M. McLURE, Bishopville; JAMES A. HAYNE, CARL A. WEST, Columbia; JOHN K. G. TUTEN, Furman; JAMES S. FOUCHE, Ninety Six.

To Camp Sevier, Aviation Section, Signal Corps, for duty, Lieut. WILLIAM E. WHITE, Greenville.

To Chicago, Ill., Presbyterian Hospital, for instruction, and on completion *to his proper station,* from Camp Sevier, Lieut. AUGUSTINE S. WEEKLEY, Bamberg.

To Fort Oglethorpe for instruction, from Baltimore, Lieut. H. MADISON ROSS, Chester.

Tennessee

To Camp Lee, Petersburg, Va., for temporary duty, from Fort Oglethorpe, Lieut. JAMES L. BRYAN, Nashville.

To Fairfield, Ohio, Wilbur Wright Field, Aviation Section, Signal Corps, for duty, Capt. GEORGE E. CAMPBELL, Elizabethtown; Lieut. ERNEST B. BOWERY, Fordstown.

To Fort Oglethorpe for instruction, Lieuts. SAMUEL HUNT, Knoxville; CONRAD O. BAILEY, Normal.

To his home and to the inactive list of the Medical Reserve Corps, Lieut. JOSEPH P. DELANEY, Arrington.

Texas

To Camp American University, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. NEWELL W. ATKINSON, Alice.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Capt. FRANK HARRISON, Ralls.

To Camp MacArthur, Waco, Texas, Aviation Section, Signal Corps, for duty, from Camp MacArthur, Lieut. JOHN POTTS, Fort Worth.

To Fort Oglethorpe, for instruction, Lieut. CHARLES H. WARREN, Gainesville.

To Southern Department, for assignment to duty, Capt. DAVID B. McGEE, Cameron.

To San Antonio, Texas, Kelly Field, Aviation Section, Signal Corps, for duty, Capt. JOHN F. NOOE, Boerne; Lieuts. JAMES A. WILKINSON, Blooming Grove; ALBERT L. MONDRICK, Bryan; JAMES R. RISINGER, Buffalo Gap; ERASTUS B. WHEAT, Cooper; WILLIAM R. SMITH, Hende; DUTCH K. ROBISON, Itasca; JAMES S. RUSHTON, Morrill; CHARLES P. YEAGER, San Antonio; GEORGE P. BAWLS, San Augustine.

To Wichita Falls, Texas, Call Field, Aviation Section, Signal Corps, for duty, Lieuts. WARREN M. WIER, Houston; DANIEL H. REEVES, Roby.

To his home and to the inactive list, Lieut. DeWITT C. BRUKES, San Antonio.

Utah

To Fort Riley, for temporary duty, Lieut. FRANK K. BARTLETT, Ogden.

To Western Department, for assignment to duty, Lieut. CLARENCE G. STIGALL, Salt Lake City.

Vermont

To Fort Oglethorpe, for duty, from Fort Oglethorpe, Lieut. FRANK C. ANGELL, Randolph.

To Fort Riley, for instruction, from Camp Grant, Capt. GEORGE L. BATES, Morrisville.

To Rockefeller Institute, New York, for instruction, and on completion to his proper station, from Camp Upton, Capt. WILLIAM STICKNEY, Rutland.

Virginia

To Army Medical School, Washington, D. C., for instruction, Lieuts. JOHN A. BOARD, Altavista; GEORGE C. RHUDY, Elk Creek; ARCHILLES D. TYREE, Iron Gate.

To Camp Lee, Petersburg, Va., for temporary duty, Capt. ROBERT H. WRIGHT, Richmond.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. LESLIE C. BURTON, Clayville.

To Camp Shelby, Hattiesburg, Miss., for duty, Lieut. EZRA E. NEFF, Chilhowie.

To Fort Oglethorpe, for instruction, Lieut. THOMAS R. COLLIER, Hampton; from Richmond, Lieut. WILLIAM B. HOPKINS, Richmond.

To Newport News, Va., for duty, from Camp Meade, Lieut. ROBERT A. DAVIS, Newport News.

To New York City, Bellevue Hospital, for instruction, and on completion *to Fort Oglethorpe,* for instruction, Lieut. CHARLES C. TEUNANT, Charlottesville.

To Washington, D. C., Government Hospital for the Insane, for intensive training, Lieut. WILLIAM A. TRIVETTE, Petersburg.

To the inactive list, from Richmond, Major ALFRED GRAY, Richmond.

Washington

To Camp Lewis, American Lake, Washington, for temporary duty, Capt. WILMOT DE LEE READ, Tacoma.

To Fort McPherson, Ga., for duty, from Douglas, Ariz., Lieut. RALPH HENDRICKS, Spokane.

To Western Department, for assignment to duty, Lieut. ELIPHALET T. PATEE, Pullman.

Honorably discharged on account of physical disability which existed prior to his entrance into the service, Lieut. DANIEL R. CAMPBELL, Pullman.

West Virginia

To Army Medical School, Washington, D. C., for instruction, Lieuts. DAVID T. WILLIAMS, Martinsburg; ALVIN McCLUNG, Pickens.

To Fort Oglethorpe for instruction, Capt. HERBERT H. HAYNES, Clarksburg.

To Spartanburg, S. C., for duty, from Camp Gordon, Lieut. RICHARD H. EDMONDSON, Morgantown.

To their homes and honorably discharged from the Medical Reserve Corps, Lieut. THADDEUS C. McCLUNG, Ronseverte; on account of physical disability which existed prior to entrance into the service, Lieut. CLERMONT E. PARK, Parkersburg.

To Ann Arbor, Mich., for intensive training, Capt. OSCAR C. WILLHITE, Lake Geneva.

Wisconsin

To Camp Taylor, Louisville, Ky., for duty, Capt. BURT E. SCOTT, Berlin; Lieut. CHARLES R. FARNHAM, Milwaukee.

To Camp Wheeler, Macon, Ga., for duty, from Fort Riley, Capt. MILTON W. HALL, Mondovi.

To Fort Des Moines, Iowa, for duty, Lieut. WALTER J. JONES, Rockland.

To Mercedes, Texas, for duty with the Sixteenth Cavalry, from Fort Riley, Lieut. WAYNE F. COWAN, Stevens Point.

To Milwaukee, Wis., Milwaukee County Hospital, for duty, Majors ROBERT C. BROWN, CURTIS A. EVANS, Milwaukee; Capts. HENRY B. HITZ, PHILIP F. ROGERS, FRANCIS A. THOMPSON, Milwaukee; Lieuts. ORVILLE R. LILLE, FRANCIS B. McMAHON, EDWARD L. THARINGER, Milwaukee. Milwaukee Auditorium for duty, from Fort Riley, Lieuts. GEORGE M. FITZGERALD, Milwaukee; JOHN E. RUETH, Sun Prairie.

To New York City, Neurological Institute, for instruction, Lieut. ADAM L. CURTIN, Milwaukee. *Roosevelt Hospital,* for instruction, and upon completion *to Camp Lee,* Petersburg, Va., for temporary duty, from Fort Oglethorpe, Lieut. CORNELIUS J. CORCORAN, Milwaukee.

To Rantoul, Ill., Aviation Section, Signal Corps, for duty, Lieut. DREXEL L. DAWSON, Rice Lake.

To Rochester, Minn., Mayo Clinic, for instruction, and upon completion *to his proper station,* from Fort Snelling, Lieut. GEORGE F. SPENCER, Evansville.

Honorably discharged, Lieut. GEORGE E. PETERSON, Waukesha.

To his home and honorably discharged, Lieut. LEE W. CAREY, Winnebago.

For a Canadian Federal Department of Public Health.—Commenting editorially on the establishment of a federal department of public health with a minister in the cabinet, a question now being earnestly considered in Canada, the *Public Health Journal* says: "We have pleasure in serving notice on the federal government that unless it can be clearly established that this matter must wait until after the war, and further, that other less vital questions shall not receive prior consideration because of political expediency, we are prepared to show that public opinion is in sympathy with the earliest possible action directed to the end that federal public health matters may be dealt with by a federal department of public health. Furthermore, federal or national public health questions relating to infant welfare, industrial hygiene, immigration, social hygiene, mental hygiene, housing, sickness insurance, etc., are problems which do not demand attention only when a government sees fit to deal with them. They are basic things in social welfare and must not be sacrificed to political expediency."

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Tri-County Tuberculosis Hospital.—Announcement is made that the proposed tuberculosis hospital for Kings, Tulare and Kern counties will be in the Sierra foothills, not far from Springville.

Personal.—Dr. Francis F. Jackson has been elected one of the commissioners of public health and safety of Oakland. ——Dr. Wilbur A. Sawyer, Sacramento, has resigned as secretary of the state board of health, to accept military service, and will, it is said, be succeeded by Dr. Wilfred H. Kellogg, San Francisco.

Tentative Report on Social Insurance.—The State Social Health Insurance Committee of the Los Angeles County Medical Association has made a tentative report to the society, setting forth forty-four propositions which should be included in a scheme of state health insurance, which the committee approves in principle. Their scheme is based on the propositions of the Committee of State Social Insurance of the American Association for Labor Legislation. The insurance is to be compulsory for wage workers earning less than $100 per month and voluntary for those earning more. It provides that the state shall care for the unemployed, and that the state and employers shall care for all wage workers getting less than $40 per month, as well as all casual employees. Benefits are to be paid in case of sickness or accident or for death not covered by the workmen's compensation. The committee consists of Drs. William Wenzlick, Ross Moore and T. Perceval Gerson.

ILLINOIS

Laboratory for Hospital.—The Lutheran Hospital, Moline, has installed a well equipped pathologic laboratory which is under the direction of Dr. Maud J. O. Vollmer, Moline.

Smallpox in Bellville.—Dr. Buenaventura H. Portuondo, chairman of the Bellville Board of Health, states that there are about twenty-five cases of smallpox in the city at present. Inspections of all schools have been made and all pupils have been vaccinated.

Chicago

Medical Women Entertain.—The women students of medical colleges in Chicago, and the women interns of the city were the guests of the Medical Women's Club and the After Dinner Club, February 13, at a dinner in the Chicago College Club.

Ear, Nose and Throat Men Meet.—At the annual meeting of the Otological, Laryngological and Rhinological Society, Dr. Frank Allport was elected president; Dr. Charles H. Long, vice president, and Dr. Edward P. Norcross, secretary-treasurer.

Unlicensed Practitioners Fined.—Ernest P. Handl is reported to have pleaded guilty to practicing medicine without a license and to have been fined $50 and costs, January 16. Mrs. Bertha Roeske is said to have pleaded guilty, February 7, to practicing medicine without a license, and to have been fined $25.

New Pavilion for Hospital.—The Mothers' Aid Pavilion was formally transferred to the Chicago Lying-In Hospital, January 5. The building has been erected at a cost of more than $90,000, and is now at the services of the public and of the medical profession. Dr. Joseph B. De Lee, is physician in charge.

Red League to Open Clinic.—Physicians, actors and clergymen, came together, February 7, at the first meeting of the Red League in a campaign to restrict venereal disease. The league has decided to open a venereal clinic at 118 West Grand Avenue, supplementing the work of the clinic recently established by the city.

Physicians Lose Licenses.—The licenses to practice medicine granted to Drs. Leon T. Burgess, Isaac Walton Hodgens and Arthur L. Blunt are said to have been revoked, January 9, by Francis W. Shepardson, director of registration and education. In each case the revocation was due to violation of the Medical Practice Act.

Medical Relief Agencies Need Money.—Twelve organizations of the hospital and medical group of the Chicago Council of the Social Agencies at a meeting held, February 2, expressed the need for $200,000, for the work of this year, beyond what they can reasonably expect to raise from the regular source of income. Each of these organizations is to start a campaign to raise the money needed.

New Zealand Child Welfare Worker in Chicago.—Dr. F. Truby King, New Zealand, noted authority on child welfare and general superintendent of the Royal New Zealand Society for the Health of Women and Children, visited Chicago last week. A meeting was held in his honor, February 5, by the child welfare division of the Council of National Defense, and the Elizabeth McCormick Memorial Fund, at which Dr. King outlined the means by which New Zealand has attained the honor of having the low record for infant mortality of 50 per thousand. Dr. King believes that environment beats heredity and that ignorance is not confined to the poorer classes of society. Girls should be instructed for motherhood because they are girls and not because they are financially dependent or independent. This work is not a charity but a necessity for the healthful maintenance of the race. Dr. King also spoke at the City Club, and before the nurses and physicians of the health department, and of the Chicago Municipal Tuberculosis Sanatorium.

Personal.—Dr. Travy Hamilton Clark has been appointed president of the medical section of the National Fraternity Congress.——Dr. Frank Smithies has been appointed associate professor of medicine in the School of Medicine of the University of Illinois.——Dr. William W. Quinlan, medical referee of the Mutual Life Insurance Company of New York, has been made supervising referee of the company for the territory west of Chicago.——Dr. James M. Hancock was shot in the left temple, eye and right arm by robbers who were endeavoring to escape the police, February 2. Dr. Hancock is under treatment at the Hospital of St. Anthony and hopes are entertained for his recovery.——Major John M. Dodson has succeeded Dr. Frank Billings as medical aide to the governor of Illinois.——Lieut. Karl J. Henricksen, M. R. C., assigned to the Twentieth Engineers, who was formerly on duty in the office of the attending surgeon, Chicago, was one of the rescued passengers of the ill-fated *Tuscania*.——Dr. William E. Buehler, founder and president since the organization of the Illinois Masonic Hospital Association, declined reelection at the annual meeting, February 5.

INDIANA

Personal.—Drs. Davis L. Field and John H. Baldwin have been appointed members of the Jeffersonville Board of Health. ——Dr. Clark E. Day has been appointed police surgeon of Indianapolis.

Section Meeting.—A meeting of the eye, ear, nose and throat section of the Indiana State Medical Society, was held at the Hotel Severin, Indianapolis, February 6 and 7. At this meeting the Indiana Society of Ophthalmology and Otolaryngology was organized.

Vital Statistics.—According to statistics 62,538 babies were born in Indiana in 1917 and there were 39,416 deaths. Tuberculosis caused 3,883 deaths; pneumonia, 3,639; measles, 543; typhoid fever, 481; scarlet fever, 144; infantile paralysis, 33; smallpox, 13; 410 persons committed suicide; 182 murdered; deaths due to external causes, 2,211 men and 707 women.

New Building for School of Medicine.—Dr. C. P. Emerson, dean of the Indiana University School of Medicine, has consulted with Governor Goodrich in regard to the construction of the new school of medicine to be built on the grounds of the Robert W. Long Hospital. The estimated cost of the new building is $365,000. The present plan is for the state to buy the old medical college building at approximately $150,000, and for the university to pay the remainder of the cost of the new building.

State Board Meeting.—At the annual meeting of the State Board of Medical Registration and Examination, held in Indianapolis, January 8, it was decided that hereafter no examination for license to practice medicine in Indiana will be given in any other language than English. Dr. James M. Dinnen, Fort Wayne, was elected president, to succeed Dr. William A. Spurgeon, Muncie; Dr. A. B. Caine, Marion, was elected vice president; Dr. William T. Gott, secretary (reelected), and Dr. Moses S. Canfield, Frankfort, treasurer.

Smallpox.—On January 22, there were 192 cases of smallpox in Indianapolis, and the authorities are discussing the need of an ordinance making vaccination compulsory. In the cases among adults, 99.8 per cent. of the individuals had never been vaccinated. Not a case has been reported among schoolchildren since vaccination was made compulsory.—— It is reported that there are 100 cases of smallpox in Knightsville and that State Health Officer John N. Hurty has notified Health Officer F. G. Thornton, that unless the town takes steps to stop the spread of the disease, the entire town will be quarantined.——More than 200 cases of smallpox have been reported in Bicknell within the last two months.

KENTUCKY

Personal.—Major Arthur T. McCormack, M. R. C., Bowling Green, has been assigned to permanent duty as chief health officer of the Panama Canal, succeeding Col. Albert E. Truby, M. C., U. S. Army. Major McCormack left for his new post of duty, February 1.——Dr. Arthur H. Keller has been elected secretary of the health board of Paris and reelected city health officer.

LOUISIANA

New State Board Officers.—At the annual meeting of the State Board of Medical Examiners, held in New Orleans, the board was reorganized and the following officers were elected: president, Dr. Leon J. Menvill, Houma; vice president, Dr. Thomas E. Wright, Monroe, and secretary-treasurer, Dr. Everard W. Mahler, New Orleans.

Bureau of Social Diseases.—Carrying out the suggestion of Surgeon-General Gorgas of the U. S. Army, the Louisiana Board of Health has established a bureau of social diseases, which is to make a study of every phase of the social evil and report to the board. The bureau is composed of the members of the state board and nine other physicians, including Dr. Robin of the New Orleans Board of Health.

New Officers.—At the annual meeting of the Orleans Parish Medical Society, January 14, Dr. Paul J. Gelpi was installed as president, and Dr. Paul T. Talbot as secretary. The service flag of the society, containing fifty-six stars, was presented by Dr. John Callan, but the flag-raising ceremonies were postponed.——At the annual meeting of the Shreveport Medical Society the following officers were elected: president, Dr. Joseph E. Knighton; vice presidents, Drs. Arthur A. Herold and J. Garnett Yearwood, Caspiana; secretary, Dr. Willis P. Butler, and treasurer, Dr. Walter B. Hunter. A service flag is to be placed in the society headquarters, in the Shreveport Hospital.

MARYLAND

Personal.—Dr. Herschel J. Strickler has been appointed health officer for the district, to serve during Dr. Charles T. Buckner's absence on military duty.——Dr. Lewellys F. Barker, Baltimore, was reelected president of the National Committee for Mental Hygiene at its tenth annual meeting, recently held in New York.

University of Maryland Unit Ordered Into Training.—The members of the base hospital unit of the University of Maryland have received orders from the Surgeon-General's Office to leave at once for Camp Meade, Camp Dix or Camp Devens for training preparatory to service in Europe. Dr. Archibald C. Harrison, Baltimore, is organizing the unit, which comprises about 200 men.

Dr. Mall Eulogized.—Memorial services to Dr. Franklin P. Mall, late professor of anatomy and embryology in Johns Hopkins Medical School, marked the last public tribute of respect to the first of the group of physicians who, in 1893, established the school and inaugurated a new era of medicine in America. About 200 persons attended the services which were held at Homewood and presided over by President Frank J. Goodnow of the university.

Whooping Cough Epidemic.—Brooklyn, Anne Arundel County, is experiencing the worst epidemic of whooping cough in its history. Not only are young children by the score suffering with the disease, but many adults are also affected. Fully 75 per cent. of the schoolchildren in Brooklyn have been affected. The disease broke out several weeks ago and has spread throughout the section, reaching Curtis Bay, Fairfield and nearby points. Some of the cases among the adults are of the most dangerous type, and pneumonia frequently follows.

MASSACHUSETTS

Infantile Paralysis.—An appeal for funds to the amount of $18,000 has been made to continue the work of the commission of Harvard Medical School of Infantile paralysis. The figures show that 1,118 children were examined by the com-

mission during the year ended Nov. 20, 1917, of whom 402 had infantile paralysis prior to 1916, 670 during 1916 and 46 during 1917. Cases followed up at the homes by orthopedic nurses numbered 645; by state field workers of the commission, 520; by the Boston Instructive District Nursing Association for the commission, 125; state clinics were held in thirteen different cities with a total attendance of 950, and 155 clinics were held at the Children's Hospital, Boston, with an attendance of 3,889.

MINNESOTA

Mayo Fund Turned Over to State.—January 17, the Wells and Dickey Company, Minneapolis, turned over to State Treasurer Rines, bonds and cash amounting to $1,693,000, representing the trust fund established by Drs. Charles H. and William J. Mayo, Rochester, for carrying on medical research work at the University of Minnesota.

Personal.—Dr. Walter J. Marcley, Minneapolis, has been granted indefinite leave of absence from the City and Hopewell hospitals, that he may do special work in tuberculosis in France. Dr. Frank H. Hacking has taken charge of the work at the hospitals during Dr. Marcley's absence.——Dr. Christian S. Reimestad has been appointed health officer of Brainerd, succeeding Dr. Werner E. Hemstead, resigned to accept the position of physician at the State Infirmary, St. Cloud.

NEW JERSEY

Contract for Sanatorium Awarded.—The board of supervisors of Rockland County have awarded the contract for the construction of the new tuberculosis hospital for $42,372.

Personal.—Dr. William L. Holt, health officer of Maplewood, has been appointed full time health officer of Beloit, Wis.——Dr. John J. McDonald has resigned as superintendent of the Jersey City Hospital.

Provision for Sick Soldiers.—The commissioners of Jersey City have authorized Mayor Haig to expend $20,000 in fitting up additional hospital quarters, because of the great increase in population surrounding Jersey City as a consequence of the establishment of Camp Merritt and other camps within a short distance of the city.

Clinic Awarded for Drug Users.—The citizens' committee appointed by Mayor Gillen of Newark to investigate the subject of habit-forming drugs in the city, and to make recommendations for the elimination of this evil, have recommended that a clinic be established in the City Dispensary, for the study and treatment of narcotic addicts, so that immediate help may be given indigent addicts, and "a progressive study be made to guide in the committee's future deliberations."

NEW YORK

County Tuberculosis Hospitals.—By the laws of 1917, the statute that makes it mandatory for every county having a population of more than 35,000 to provide a tuberculosis hospital, affects twenty counties. The department has inspected sites in all except two of these twenty counties, where the authorities have appointed site committees. Sites have been approved in the following eleven counties: Niagara, Livingston, Broome, Herkimer, Nassau, Rockland, Chautauqua, Wayne, Otsego and Rensselaer counties.

Long Island Physicians Meet.—At the twentieth annual meeting of the Associated Physicians of Long Island, held at the Long Island College Hospital, January 26, the following officers were elected: president, Dr. Lefferts A. McClelland, Brooklyn; vice presidents, Drs. William A. Hulse, Bay Shore; Henry Goodwin Webster, Brooklyn, and Harris A. Houghton, Bayside; secretary, Dr. James Cole Hancock, Brooklyn, and treasurer, Dr. Edwin S. Moore, Bay Shore. The morning sessions consisted of medical and surgical clinics; in the afternoon a clinical demonstration of the Carrel-Dakin system was made and the day was concluded with a banquet at the Hamilton Club.

Bill for Reorganization of State Board of Charities.—There is a bill before the legislature providing for the reorganization of the State Board of Charities. Instead of an unpaid board of twelve members, appointed by the governor from different districts, the bill provides for a board of nine members, at least one of whom shall be a woman and of whom three are to be paid. They are to be appointed from the state at large and must have special qualifications specified by law. The three paid members are the president and the chairmen of two new bureaus within the board, the Bureau of Mental Deficiency and the Bureau of Dependent Children. The specialists provided for are an educational expert, a physician who shall have special knowledge in tuberculosis, one having special knowledge in psychiatry, a general practitioner and a lawyer.

Public Health Nursing.—During 1917 the state was divided into thirteen districts, each in charge of a public health nurse and a nurse trained in the after-care of infantile paralysis, according to *Health News* (January, 1918). Working in connection with the sanitary supervisors of their districts, they investigated forty-nine outbreaks of communicable diseases, made tuberculosis surveys in five counties, conducted child welfare exhibits in eighteen municipalities, and established ten little mothers' leagues in the state, with a membership of 415. Birth registration was investigated in seventeen municipalities and rural health surveys were made in seventeen others. Food exhibits and talks in connection with them were made by the nurses in twenty-five communities, a different community being visited each week. The after-care nurses had an average of 293 poliomyelitic patients to visit in addition to seventy-two patients who were brought to hospitals for operation. One nurse was assigned to the supervision and instruction of midwives. The nurses will arrange for tuberculosis clinics in their districts, to be conducted by experts, and will maintain a proper follow-up system in the homes.

New York City

Harvey Society Lecture.—The sixth lecture of the Harvey Society series was delivered, February 9, by Dr. J. Gordon Wilson, professor of otology in the University of Chicago, on the "Effect of High Explosives on the Ear."

Gifts to Columbia University.—Among the gifts to Columbia University announced at a recent meeting of the trustees of that institution is one of $3,000 for research work in war problems from an anonymous donor and another of $5,000 from Clarence Mackay for surgical research work.

The National Committee on Mental Hygiene.—This organization has recently held its tenth annual meeting in New York, when the following officers were elected: president, Dr. Lewellys F. Barker, Baltimore; vice presidents, Drs. Charles W. Elliot, Walter B. James, New York, and William H. Welch, Baltimore; treasurer, Mr. Bannard; medical director, Dr. Thomas W. Salmon, New York; associate medical director, Dr. Frankwood E. Williams.

Ask Congress to Run Quarantine Station.—Secretary of the Treasury McAdoo has asked Congress for an appropriation of over $1,500,000 for the New York Quarantine Station. Of this sum $1,395,275 is asked for the purpose of purchasing the property of the station and $275,000 is for the purpose of operating the station during 1919. The bill asking this appropriation is accompanied by a statement showing why the federal government should own and operate this quarantine station.

Court Sustains Privacy of Health Department Records.—Following the refusal of the health department to accede to the request of Charles M. Higgins to furnish certified copies of certificates of all the thirty-three fatal cases of tetanus occurring in the city in 1915, application was made to the supreme court, County of Kings, for a writ of mandamus to compel the commissioner of health to furnish the copies requested. The supreme court has handed down a decision denying the application and dismissing the proceedings.

Pneumonia Deaths Continue to Increase.—The records of the New York City Health Department show that for the week ending February 9, the mortality from all causes was 1,772, 355 of which were due to pneumonia, while for the preceding week there were 1,736 deaths of which 325 were due to pneumonia. The highest number of deaths from pneumonia recorded on any one day this winter was on February 5, the day following the extremely severe cold wave, when there were 73 deaths reported as due to this disease.

Military Night at Academy.—The meeting of the New York Academy of Medicine, February. 7, was devoted to papers on military subjects, relative to the Camp Upton Base Hospital, commanded by Major Jay D. Whitham. The papers presented were, "Classification and Results of Treatment of Pneumonia at Camp Upton," by Dr. Russell L. Cecil, director of laboratory; "Measles from the Standpoint of Military Medicine," by Dr. John Francis Hackett, Mansfield Depot, Conn., in charge of contagious wards; "Hyperthyroidism in the Recruit," by Dr. Harlow Brooks, chief of medical service, and "Autoinoculation in Syphilis," by Dr. Joseph V. Klauder, in charge of the syphilis wards."

Personal.—Dr. Charles Norris has been appointed chief medical examiner (coroner) for a probationary period of three months. In order to assume the duties of his office he has obtained a six months' leave of absence from his position as director of laboratories. Dr. Douglas Symmers will succeed Dr. Norris as director of laboratories.——Dr. Russel A. Hibbs of the University of Louisville has been appointed professor of orthopedic surgery in the college of Physicians and Surgeons of Columbia University.——Dr. Eugene W. Caldwell of Bellevue Hospital Medical College has been appointed to the newly established chair of roentgenology in the same institution.——Dr. Mark J. Schoenberg has been appointed attending surgeon to the Hermann Knapp Memorial Eye Hospital.——Capt. Henry James, M. R. C., who has been stationed at Base Hospital No. 15 in France since last July, has returned to this country on six months' leave of absence. ——Dr. Charles D'Artois Francis, Brooklyn, is reported to have been committed to the Kings Park State Hospital, January 29.

PENNSYLVANIA

Upstate Hospital Burns.—The Williamsport Private Hospital has been destroyed by fire. The blaze was caused by an overheated furnace. All the patients were rescued. The loss is $50,000.

Personal.—Dr. Maud Conyers Exley has been appointed a member of the dispensary staff of the Harrisburg Hospital, succeeding Dr. James E. Dickinson, transferred.——Dr. Edward S. Dougherty, Ashley, was painfully injured when an automobile in which he was riding crashed into a telegraph pole near Liberty.

Rag Shops Must Get License.—In accordance with an act passed by the 1917 legislature, effective January 1 of this year, the board of health has completed arrangements for issuing licenses to dealers in rags, used clothing and waste paper. The purpose of the act is to have that business conducted in a more sanitary manner.

Philadelphia

Personals.—Dr. Edward A. Treacy has been appointed assistant medical inspector of the department of health and charities with a salary of $1,400.——At a meeting of the board of trustees, Prof. Charles H. La Wall, chemist for the state dairy and food commission, was elected dean of the pharmacy course in the Philadelphia College of Pharmacy, to succeed the late Dr. Joseph P. Remington.

New Medical Club Election.—As the result of a protest that the recent election was in technical violation of the by-laws of the organization, filed with the board of governors of the Medical Club of Philadelphia, the board has called for another election. The technical point raised was that the name of the member elected did not appear on the official ballot as required by the by-laws of the organization.

Centenary of Dr. Wistar.—The centenary of the death of Dr. Caspar Wistar was celebrated, February 1, by the American Philosophical Society, of which he was president from January, 1815, until his death in January, 1818. Papers were read on Dr. Wistar "As a Citizen and Philosopher," by Dr. I. Minis Hays, "As a Human Anatomist," by Dr. George M. Piersol, and "As a Comparative Anatomist," by Dr. William Scott.

Personal.—Dr. D. P. Hillegass has been appointed a member of the State Bureau of Medical Examination and Licensure.——Dr. Max H. Bochroch has been appointed visiting physician to the psychopathic ward of the Philadelphia General Hospital.——Plans to celebrate the fiftieth anniversary of Dr. Anna E. Broomall's association with the Woman's Hospital are now being made by a committee of women physicians of the hospital. Dr. Broomall is consulting physician at the hospital.——Dr. E. V. McCollum of Johns Hopkins University will deliver the annual Packard Lecture of the Pediatric Society on February 12, the subject being "Growth." ——Dr. A. Wiese Hammer has been appointed surgeon to the Pennsylvania Railroad.——Dr. Thomas J. Mays, who was stricken at his home with apoplexy, is still in a serious condition.

TENNESSEE

State Board Election.—At the annual meeting of the state board of health, held in Nashville, Dr. Evander M. Sanders, Nashville, was elected president, succeeding Dr. Rufus E. Fort, Nashville, and Dr. Walter J. Miller, Johnson City, was elected vice president.

Sanatorium Workers.—An active campaign is being made in East Tennessee to raise a fund of $50,000 for the establishment of an East Tennessee sanatorium. The sanatorium corporation owns a farm of 125 acres near Knoxville, and other property valued altogether at about $30,000.

Hospital Notes.—The Lincoln Memorial Hospital was purchased by the city of Knoxville, December 13, for $65,000. Payment for the property will be made from an appropriation of $100,000 for the improvement of hospital facilities in Knoxville. The institution will be joined by the Knoxville General Hospital whereby the capacity of the latter will be increased by nearly 100 patients. The old medical college is to be converted into a home for nurses, and the second and third floors of the laboratory will be converted into a maternity hospital.——Baird-Dulaney Hospital, Dyersburg, has purchased property to be used as an annex to the institution. The annex will be ready for occupancy, June 1, and when completed will give the hospital a capacity of seventy-five beds.

TEXAS

Tuberculosis Clinic.—The Dallas Association for the Study and Prevention of Tuberculosis has raised $3,500 through the sale of Red Cross Christmas seals. This sum will be the basis for the establishment of a clinic, which will be kept open every day and will be devoted to treatment and education.

Personal.—Dr. Arvel R. Ponton, Post, has disposed of his interest in the Post Sanitarium and has moved to Lubbock. ——Dr. Ovie J. Colwick, Fort Worth, has been appointed field director of rural sanitation of the state board of health.—— Dr. T. B. Fisher, for many years health officer of Dallas, has been appointed a member of the state board of health to succeed Dr. W. D. Littler, resigned.——The resignations of Drs. R. L. Aiguer, E. A. Werner, and Gano, have been accepted by the health department of Dallas.

CANADA

Promotion.—Lieut.-Col. Samuel H. McKee, Montreal, has been promoted to the full rank of colonel. He went to the front shortly after the outbreak of the war, took part in the Dardanelles campaign and also saw service on the western front, being created a C. M. G. in recognition of meritorious services. He is at present in command of the eye and ear hospital at Folkstone, England.

Reconstruction.—The fight is on again to see who is "top dog" in the control of the returned Canadian soldier—the Military Hospitals Commission or the Army Medical Corps. The Army Medical Corps alleges that there are not sufficient beds in the Toronto Military District, and the Hospitals Commission points out there are nearly a thousand extra available, but that number includes two hospitals which are outside the jurisdiction of the Toronto Military District. It is probable that the government will order an investigation of the matter.

Hospital News.—Capt. J. E. Freeman, Kingston, Ont., has placed his entire farm of 100 acres at the service of returned soldiers who are convalescing at Kingston. The farm is offered as a patriotic gift for the period of the war. It will be under the control of the Military Hospitals Commission. ——The latest census of the Military Convalescent Hospitals of Canada, taken January 15, shows 11,667 men under supervision. The figures include 9,660 men in convalescent hospitals, 1,319 in sanatoriums undergoing treatment for tuberculosis, and 688 who are being cared for in other hospitals. ——Fire broke out in the Spadina Military Hospital, Toronto, January 24, but the patients, under the direction of the officers, had the flames under control before the arrival of the fire bridge.

Personal.—Major Gilbert Royce, Toronto, who has been overseas with the University of Toronto Base Hospital for nearly three years, has been appointed commandant of the Canadian Hospital at Bromley, Kent, England.——Major Samuel H. McCoy, formerly of St. Catherine's, Ontario, but more recently of Toronto, who has been overseas some time, has been appointed commandant of Yarrow Hospital, Broadstairs, England.——Dr. Alan E. McKibbin, Ottawa, a graduate of the University of Toronto, has returned from overseas to Toronto, and has been assigned to duty at the Whitby Hospital for Soldiers in Ontario.——Capt. Edwin Campbell McArthur, Greenwood, B. C., is now with the University of Toronto Base Hospital at Basingstoke, England.——Capt. William E. Sinclair, M.B., Toronto, 1914, has been awarded the military cross for his work at Paaschendaele. His home is in Meaford, Ontario, and he is in charge of No. 5 Field Ambulance.

Discussion of Venereal Diseases.—The Academy of Medicine, Toronto, held a special session on the prevalence of venereal diseases in the Toronto Military District. Capt. Gordon A. Bates gave the following figures: In the four weeks ending Sept. 30, 1917, out of 13,000 men examined, 132 cases developed; in October, out of 12,000 men, there were 117 cases; in November, out of 13,000 men, there were only 91 cases, and in December, out of 12,775 men, there were only 75 cases. Of the men who actually had venereal disease, a large percentage had developed their infection previous to joining the army. Figures obtained among men recently drafted in Toronto showed that from January 3 to 17, out of 1,400 men, exactly 49 cases were found. Thus, the amount of disease among draftees, who are practically members of the civilian population, is just ten times what it would be in a body of troops of equal number. Dr. Bates was able to state definitely that the percentage of syphilitics among men returned from the front was less than the 12 per cent. given by Dr. Herbert K. Detweller as existing in the wards of the Toronto General Hospital in the first three months of 1917. It would seem, then, that there is more disease outside the army than within.

GENERAL

A Warning.—Officials of the Rogers Electric Laboratories Company write that for the past few years a man by the name of L. C. Sykora has been representing himself to the medical profession as connected with their company and has been practicing innumerable frauds, and that he also uses the names of other companies in his schemes. They add that one of his methods is to borrow electrical apparatus which he does not return.

The Neurological Bulletin.—The first number of a new publication, to be known as the *Neurological Bulletin*, has just been issued. It is devoted to clinical studies of nervous and mental diseases in the neurologic department of Columbia University. It is edited by Dr. Frederick Tilney, assisted by Dr. Louis Casamajor and an editorial board. Case reports, as presented in the regular staff conferences of the neurologic department, will be published, to include discussions by the clinical staff. The first number, containing thirty-four pages, contains seven articles. Particularly valuable is the discussion of a summary and differential diagnosis blank for diseases of the nervous system, by Dr. Oliver S. Strong.

Development of Cooked Food Service in New York City.—That new social conditions are arising out of the food and labor situation is shown by the response of the public to the new food service plan being established to deliver cooked meals to homes. The demand for this service comes from the better class of apartment houses and separate homes on the upper west side, within motor radius of the first station at 215 West Seventy-Ninth Street, but the founders are making every endeavor to place the low-priced service within the reach of the industrial population. Two weeks before its opening day (February 1), the first station was registered almost to its full capacity of 500 persons per day. Other stations are in contemplation, so that all parts of the city may have hot, well balanced meals, fulfilling all the requirements of the food administrator and endorsed by him, delivered to the homes.

FOREIGN

Deaths in the Profession Abroad.—**G. Weiss,** professor of general pathology and dean at the University of Messina, aged 73.——Major **P. D. Siccardi,** assistant at the Clinic for Industrial Diseases at Milan, succumbed to laboratory infection while studying spirochetosis icterohemorrhagiae.——Capt. **G. Lerda,** instructor in operative surgery at the University of Turin.——According to a notice in the *Norsk Magazin for Lægevidenskaben,* Prof. **B. Krönig** of Freiburg is dead, aged 60. The Freiburg gynecologic clinic and maternity in his charge, it will be remembered, was the pioneer in "twilight sleep" and in roentgen treatment of cancer with exceptionally large doses.

CORRECTIONS

In the Selective Service Regulations, THE JOURNAL, Feb. 2, 1918, page 320, Section 187, the line reading "Registrants with contagious, communicable, reportable diseases should be ordered before the local board for examination until they are discharged by the Boards of Health" should read "Registrants . . . should not be ordered, etc." The line following, "Registrants recovering from diphtheria should be ordered, etc.," should read "should not be ordered."

LONDON LETTER

LONDON, Jan. 14, 1918.

Torpedoing of Hospital Ship

The Hospital Ship *Rewa* was torpedoed and sunk in the English Channel about midnight, January 4, on her way home from Gibraltar. There were 287 wounded on board. All were safely transferred to patrol vessels, and there were only three casualties among the crew, three Lascars being missing. She was displaying all the lights and markings required by the Hague Convention, and she was not, and had not been, within the so-called "barred zone" as delimited in the statement issued by the German government, Jan. 29, 1917. It may be remembered that in order to stop the sinking of hospital ships by the Germans, under the groundless pretext that they were used to carry soldiers or munitions, an agreement was entered into with the German government—evidently another scrap of paper—that hospital ships should carry a Spanish naval officer to insure that they were not so used, and would then be immune. Before this agreement, hospital ships ran without lights at night, risking collisions in order to avoid the greater danger of the German pirates. Trusting to the agreement, the *Rewa* was lighted up and going at about 4 knots. A torpedo struck with a terrific crash right on the hospital cross. The conduct of the captain and other officers was admirable; orders were given and carried out with splendid accuracy, and boats were successfully launched while the ship was sinking. There were about thirty patients in cots, and these were first placed in the boats. The four women nurses were then taken off. When every one else had left the ship, the officers followed. About ten minutes after the last boat was loaded, the ship plunged head foremost and disappeared. Wireless messages that had been dispatched were picked up by mine sweepers and other ships, and the boats after being adrift from between one and two hours were picked up in the moonlight. In accordance with the agreement, a Spanish officer had traveled from Saloniki, and left the vessel at the last port of call, Gibraltar. Hospital ships are so distinguished that there is no possibility of confusing them even at a distance of several miles, either during the day or at night with other vessels. They are painted white, have a broad band of green from stem to stern about 4 feet deep, huge red crosses painted amidships and red crosses on each bow. At night large vessels, such as the *Rewa*, besides carrying the usual navigation lights have several hundreds of lights burning. The sides of the ships are picked out with a belt of green electric lights about 3 feet apart, and the red crosses are illuminated by brilliant white electric lights. The *Rewa* was 456 feet long, and would have been seen at a distance of at least 5 miles. She is the sixth British hospital ship known definitely to have been torpedoed without warning during the last ten months. In each case the crime was committed during the night.

Retirement of Sir Alfred Keogh

With great regret, the secretary of state for war has decided to allow Surgeon-General Sir Alfred Keogh to resume his work as general executive officer to the Imperial College of Science and Technology. He will be replaced by Col. T. H. J. C. Goodwin, until recently assistant director of medical services to the British Recruiting mission in America. When the war began, Sir Alfred Keogh had retired from the army. His services were placed by the governors of the Imperial College of Science and Technology at the disposal of the War Office, and, although, during the last three years they have on several occasions requested that he should return to his former duties, owing to the development of matters of great national urgency that are delayed by his absence, it has not hitherto been possible to spare him. It is largely due to Sir Alfred Keogh's prevision, intimate knowledge, and administrative grasp that the army medical service has been such a success. His successor, Colonel Goodwin, has served through the period of Mons, the Marne and Ypres, and by his mission to America has fostered the fraternal feeling between the members of the profession on each side of the Atlantic.

The Increase of Cerebrospinal Fever

The Local Government Board has issued a report by its medical officer, Sir Arthur Newshelme, on the prevalence of cerebrospinal fever. The number of cases which occurred are as follows: 1913, 305; 1914, 315; 1915, 2,566; 1916, 1,306; 1917 (to June 30 only), 1,085. These figures relate only to the civilian population. Among soldiers, 1,136 cases of cerebrospinal fever were reported in England and Wales in 1915, and 893 in 1916. Corresponding with the increase in the

number of cases is a great increase in the mortality. In the five years 1901-1905, the total deaths from cerebrospinal fever in England and Wales numbered 395, or an average of 79 annually. In the next five years the annual number of deaths averaged 122. In the three following years the annual deaths averaged 146. In 1914 they had increased to 194, in 1915 to 1,974, and in 1916 they fell to 369. In the recent epidemic, England and Wales suffered much less severely than other countries in which cerebrospinal fever has become epidemic. In 1915, the mortality among the troops occurred earlier in the year than that in the civilian population. The case mortality was about 53 per cent., both in the civilian and in the military population. But little is known of the conditions under which epidemics arise. In this respect there is some resemblance between influenza and cerebrospinal fever. Both diseases occur at irregular intervals in widespread epidemics, embracing whole continents; while in the interepidemic periods, sporadic cases, or even small outbreaks occur, which do not appear to possess the power to spread, and consequently die out. In influenza, however, insusceptibility to attack is unusual; in cerebrospinal fever it is the rule, the difference possibly being bridged over by minor catarrhal or febrile attacks due to the meningococcus, in which meningeal invasion fails to occur.

PARIS LETTER

Paris, Jan. 10, 1918.

Death of Professor Lepage

Dr. G. Lepage, 58 years of age, is dead. He was associate professor of obstetrics at the University of Paris and obstetrician to the hospitals. Intern in 1888, he became successively chief of the laboratory, chief of the clinic, and *répétiteur* at the Baudelocque Clinic. In 1894 he was appointed obstetrician to the hospitals, continuing his teaching work, and in 1898 he was made *professeur agrégé* of obstetrics. In these two services, which he directed successively at the hospitals of the Pitié and Boucicaut, he was given charge of a course in a supplementary clinic. When war was declared he offered his services as a surgeon and has been thus engaged at two of the military hospitals of Paris, besides organizing a maternity service elsewhere.

In collaboration with his master, Ribemont-Dessaignes, Lepage published a treatise on obstetrics that was authoritative. He also published a practical treatise on obstetric antisepsis, and edited several chapters of the "Medico-Chirurgical Practice." Original articles were published in the *Annales de Gynécologie*, etc. By numerous communications and actual participation in discussions, besides his scientific publications Lepage contributed to the prosperity of the Société d'obstétrique, de gynécologie et de pédiatrie de Paris, of which he was secretary-general from 1902 to 1907. He also was secretary-general of the Association générale des médecins de France from 1906 to 1911.

Dressings That Do Not Touch the Wound

At a recent meeting of the Société de pathologie comparée, Drs. Polonowski and Durand described their method of wound treatment. In order to avoid contact of the dressings with the wound in cases requiring irrigation, they conceived the idea of isolating the wound from the gauze by a protective apparatus, consisting of a wire netting molded to fit over the wounded area. The edges rest on a small roll of absorbent cotton fastened to the netting. The irrigating tubes do not touch the wound. Compresses placed on the wire netting protect against dust. The fluids run off into a waterproof bag. The apparatus is immobilized with adhesive plaster or a mixture of colophonium, 40; ligroin, 5; turpentine spirits, 2, and alcohol, 20. This procedure obviates contact of the drainage tubes and wicks with the wound, and adds greatly to the well-being of the patient. Dressings are changed seldom because the irrigation keeps the wound in good condition and it can be inspected by raising the outer dressings. This method of dressing permits of subjecting the wound alternately to irrigation and to heliotherapy. It is adaptable to all methods of treatment. Fitted out with this apparatus, the wounded can be evacuated painlessly into the interior. The neutral solution of chlorinated soda can be replaced advantageously by an isotonic solution of sodium chlorid. The resulting cicatrix is comfortable and supple.

Etiology of War Tachycardia

Dr. Octave Crouzon, physician to the hospitals, and Dr. Abel Mauger recently demonstrated to the Société médicale des hôpitaux de Paris that a large number of cases of tachycardia are caused by an infectious lesion of the heart, organic and latent, existing quite often before the war, and caused to flare up by the war, of which the sole clinical manifestation is an acceleration of the pulse, without any other objective sign. Therefore, these cases should not always be regarded as simple functional disturbances, but one must think of an organic basis in those with antecedent rheumatism, typhoid or other recent severe infection. Consequently, from the military point of view, these cases should be considered for service provisionally or at times even definitely, as representing only limited fitness.

Treatment of the Itch, Tinea and Vermin in Horses by Sulphuration

At a recent meeting of the Academy of Medicine, Mr. T. A. Clayton called attention to the good results obtained in the treatment of the itch, occurring among soldiers, by a gaseous mixture resulting from burning sulphur in a closed oven. The mixture is known as "Clayton's gas" and was employed successfully by the English in the South African War. In April, 1915, the British military authorities called on Mr. Clayton to delouse the soldiers by this method and also to combat the itch in man and beast. The men wear a mask and stay half an hour in the sulphuration room. They are treated with their clothes on. Not only itch mites, lice and nits are destroyed, but also all parasites and vermin affecting the skin. The *Bulletin* of the academy publishes an illustrated description of the procedure as applied to horses of the French cavalry. The government had a stable built for the purpose with ten stalls, although the apparatus could sterilize twenty horses at one time. The head of the horse projects, but he wears a hood continuous with the lining of the stall, only the nose being left exposed. Forty horses can thus be freed of itch and external parasites per day with this stable, and the success has been complete with seventy horses to date. None were washed or shaved beforehand, and each wore his harness.

Cerebral Tetanus

At a recent session of the Academy of Medicine, Dr. Léon Bérard, associate professor on the Faculty of Medicine of Lyons, and Dr. Auguste Lumière called attention to a new form of clinical tetanus, characterized by cerebral symptoms, which had not been observed previously. The case in question was one of late tetanus. The cerebral complication did not appear until a week or two after the onset of the contractures. The symptoms consisted of hallucinations, delirium, excitement and phobias, with nocturnal exacerbations, coming on suddenly and with maximum severity, persisting for eight days at least, and then gradually lessening in severity. There was no elevation of temperature. Bérard and Lumière believe that these are wholly toxic manifestations.

Marriages

Capt. Francis Wallace Meagher, M. R. C., U. S. Army, Brooklyn, on duty at base hospital, Kelly Field, South San Antonio, Texas, to Miss Emily Winifred Rose of Brooklyn, January 12.

Lieut. Charles Benjamin Kendall, M. R. C., U. S. Army, Columbus, N. M., to Miss Nell Gordon of Chester, Pa., at El Paso, Texas, December 3.

Lieut. Louis Nelson West, M. R. C., U. S. Army, Raleigh, N. C., to Miss Eliza Eagles (Betsey John) Haywood of Atlanta, Ga., January 18.

Hope Thomas Martin Ritter, M.D., Allentown, Pa., to Miss Sarah Snyder of Phillipsburg, Pa., in Philadelphia, January 9.

Charles Robert Graham, M.D., Brownville, Pa., to Miss Beulah Minerva Glosner of New Castle, Pa., January 15.

Lieut. Randolph Dade, M. R. C., U. S. Army, to Miss Ruth Baynham, both of Hopkinsville, Ky., January 17.

George Augustine Sheehan, M.D., to Miss Laurette Regina Ennis, both of Brooklyn, January 23.

Marcus Bryed Wilson, M.D., Huron, S. D., to Miss Agnes E. Collyer of Wilmette, Ill., January 30.

James Marion Smith, M.D., to Miss Inez Brant, both of Los Angeles, January 23.

Victor Lupu Schrager, M.D., to Mrs. Jean Rowland both of Chicago, January 25.

Deaths

Heinrich Stern, M.D., New York City; St. Louis College of Physicians and Surgeons, 1899; aged 49; a Fellow of the American Medical Association, and at one time chairman of the Section on Pharmacology and Therapeutics; a member of the American Public Health Association, American Urological Association, and New York Academy of Medicine; secretary of the American College of Physicians; visiting physician St. Mark's Hospital and the Methodist Episcopal Home; gold medalist of the Medical Society of the State of New York; founder and editor of the *Archives of Diagnosis;* writer on biologic chemistry, diagnosis and diseases of nutrition; died at his home, January 30, from cirrhosis of the liver.

Benjamin Ralph Swan, M.D., San Francisco; College of Physicians and Surgeons in the City of New York, 1868; aged 80; a Fellow of the American Medical Association; from 1875 to 1890 professor of pediatrics in the University of California; a veteran of the Civil War; for a long time medical referee for the Mutual Life Insurance Company of New York; formerly surgeon of the Pacific Mail Steamship Company, and coroner of San Francisco County; died at the Adler Sanitarium, San Francisco, January 27, from pneumonia.

Jacob Franklin Lewis, M.D., Little Rock, Ark.; Eclectic Medical Institute, Cincinnati, 1872; Bennett Eclectic Medical College, Chicago, 1880; aged 64; a member of the State Board of Medical Examiners of Kansas in 1879, of the Kansas State Board of Health in 1889, and of the Arkansas State Board of Health in 1908; past president and secretary of the Arkansas Eclectic Medical Society; was found dead from heart disease in his office, January 24.

Barna Edmond Radeker, M.D., Deposit, N. Y.; College of Physicians and Surgeons in the City of New York, 1874; aged 68; a member of the Medical Society of the State of New York, and for several years president of the Boone County Medical Society; a director and treasurer of the Deposit Electric Company, and president of the Deposit Telephone Company; died at his home, January 6, from paralysis.

Robert Newland Blanchard, M.D., Jamestown, N. Y.; University of Buffalo, N. Y., 1881; aged 62; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; died, January 18, from cerebral hemorrhage.

Died in the Service

CAPT. FRANK KEATOR, M.D., M. R. C., U. S. Army, 1879-1918

(*See The Journal, Feb. 2, p. 336*)

Eugene Harold James, M.D., Harrisburg, Pa.; University of Pennsylvania, Philadelphia, 1879; aged 60; formerly a Fellow of the American Medical Association; once the president of the Harrisburg Academy of Medicine; surgeon for the Harrisburg Hospital, and for twenty years the local surgeon of the Pennsylvania Railroad; died at his home, January 27.

William E. Rodman, M.D., Hodgenville, Ky.; University of Louisville, Ky., 1870; aged 70; formerly a Fellow of the American Medical Association; a member of the Kentucky State Medical Association, and secretary of the Larue County Medical Society; health officer of Larue County; died at his home, January 25.

Albertus Joseph Burge, M.D., Iowa City, Iowa; State University of Iowa, Iowa City, 1900; aged 46; a Fellow of the American Medical Association; a member of the Western Surgical Association; for twelve years a member of the faculty of his alma mater; died at his home, February 2, from pernicious anemia.

Charles Henry Stoeckle, M.D., Ludlow, Pa.; University of Pennsylvania, Philadelphia, 1892; aged 50; formerly a member of the Medical Society of the State of Pennsylvania, and medical officer of the Army; formerly a member of the staff of the State Hospital, North Warren; died at his home, January 31.

Robert Love Moore, M.D., Columbia, S. C.; University of Maryland, Baltimore, 1896; aged 46; formerly a Fellow of the American Medical Association; a member of the South Carolina Medical Association; a specialist on diseases of the eye, ear, nose and throat; died in the Columbia Hospital, January 4.

Lurton D. Dillman, M.D., Connersville, Ind.; Medical College of Ohio, Cincinnati, 1878; aged 72; formerly a member of the Indiana State Medical Association; for several terms a member of the Connersville School Board; died in the Fayette Sanatorium, Connersville, February 1, from heart disease.

Reginald Mortimer Hutchings Banbury, M.D., Brooklyn; Long Island College Hospital, 1897; aged 42; died in the Brooklyn Hospital, January 28, from heart disease, four days after a fall on an icy sidewalk in which he sustained a compound fracture of the left leg above the knee.

Lieut. Francis Findley Hanbidge, M.D., M. R. C., U. S. Army, Ogdensburg, N. Y.; Jefferson Medical College, 1916; a Fellow of the American Medical Association; is reported to have died from pneumonia, about February 3, while on duty with the American Expeditionary Forces.

Albert W. Fleming, M.D., St. Louis; Missouri Medical College, St. Louis, 1887; aged 58; a Fellow of the American Medical Association; formerly professor of operative and clinical surgery in Barnes Medical College; died at his home, December 29, from lobar pneumonia.

Elmer S. Hull, M.D., Montgomery, Pa.; Jefferson Medical College, 1884; aged 56; a member of the Medical Society of the State of Pennsylvania; who had been staying in Augusta, Ga., for several months on account of ill health; died in that city, January 27, from cerebral hemorrhage.

Charles Newell Burton, M.D., Blue Earth, Minn.; University of Michigan, Ann Arbor, 1889; aged 52; formerly a Fellow of the American Medical Association; a member of the Minnesota State Medical Association; died at his home, February 1, from cerebral hemorrhage.

Nelson Mays, M.D., Richmond, Ky.; University of Louisville, Ky., 1866; aged 76; formerly a member of the Kentucky State Medical Association; died at the home of his daughter in Richmond, January 24.

James Horrace Wright, M.D., New Lexington, Ohio; Starling Medical College, Columbus, 1881; aged 58; a Fellow of the American Medical Association; formerly captain and assistant surgeon in the Ohio National Guard; died at his home, January 25, from cerebral hemorrhage.

Thornton P. Crowell, M.D., Nankin, Ohio; Western Reserve University, Cleveland, 1868; aged 71; a veteran of the Civil War; for many years a member of the local board of education and president of Orange township; died at his home, January 30, from cerebral hemorrhage.

Annie Louisa Conner, M.D., Mount Airy, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1901; aged 42; a Fellow of the American Medical Association; a member of the staff of the Germantown and Woman's hospitals; died at her home, January 25.

Nelson Hoyt Chamberlain, M.D., Oakland, Calif.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1892; aged 49; a Fellow of the American Medical Association; died in the Hahnemann Hospital, Chicago, January 20, from cerebral hemorrhage.

Harley Howard Emerson, M.D., Columbus, Ohio; Ohio Medical University, Columbus, 1904; aged 40; a Fellow of the American Medical Association; assistant medical exam-

iner of the state industrial commission; died at his home, January 26, from asthma.

Richard Giles, M.D., Cold Spring, N. Y.; College of Physicians and Surgeons in the City of New York, 1882; aged 56; a member of the Medical Society of the State of New York; consulting surgeon to the Highland Hospital; died at his home, January 19, from myocarditis.

William A. Thompson, M.D., Cabot, Ark.; Barnes Medical College, St. Louis, 1904; aged 50; formerly a member of the State Medical Association of Texas, and a practitioner of San Antonio; died in a hospital in Little Rock, Ark., January 26.

Edward Dyer Ellis, M.D., Poultney, Vt.; Harvard Medical School, 1877; aged 67; formerly a member of the Vermont State Medical Society; for many years director of the First National Bank of Fair Haven, Vt.; died at his home, January 26.

William D. Hoge, M.D., Rayland, Ohio; Western Reserve University, Cleveland, 1889; aged 54; a Fellow of the American Medical Association, and a director of the People's Bank of Martin's Ferry; died at his home, January 20, from valvular heart disease.

Francis Gurney Bennett, M.D., Norwich, Pa.; Jefferson Medical College, 1889; aged 50; a Fellow of the American Medical Association; formerly a member of the medical staff of the Clearfield Hospital; died at his home, January 17, from pneumonia.

Homer H. Throop, M.D., Newport-Richie, Fla.; Northwestern University Medical School, 1880; aged 74; formerly of Jackson, Mich., and a member of the Michigan State Medical Society; died at his home, January , from chronic myocarditis.

Montrose Graham Tull, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1885; aged 58; formerly a Fellow of the American Medical Association; a specialist on diseases of the eye; died at his home, January 25, from pneumonia.

Mary P. Meyer Fleming, M.D., Baltimore; Baltimore Medical College, 1883; aged 84; said to have been the first woman to study medicine in Maryland; a pioneer suffragist of Maryland; died at her home, January 20, from pneumonia.

Lieut. Ivan Ellsworth Bellinger, M.D., M. R. C., U. S. Army, Sweet Home, Ore.; Williamette University, Salem, Ore., 1913; aged 30; on duty at Fort Riley, Kan., since December 10; died in that place, January 17, from pneumonia.

Charles Wingate Badeau, M.D., Dunedin, Fla.; New York University, New York City, 1869; formerly a resident of Passaic, N. J., and district physician for the fifth district, New York City; died at his home, January 3.

Julian Howard Evans, M.D., Sandersville, Ga.; Vanderbilt University, Nashville, Tenn., 1887; aged 50; a member of the Medical Association of Georgia; died at his home, January 24, from acute gastritis.

Manuel S. da Silva, M.D., Sacramento, Calif.; College of Physicians and Surgeons of San Francisco, 1901; aged 55; a native of Pico, Azores; died in the Sisters' Hospital, Sacramento, January 19.

Gustav A. Fischer, M.D., Chicago; University of Prague, Bohemia, 1871; aged 72; died at his home, January 31, from cerebral hemorrhage, formerly a member of the Illinois State Medical Society.

Cyrus E. Pringle, M.D., Pocahontas, Ark.; Missouri Medical College, St. Louis, 1883; aged 56; a member of the Arkansas Medical Society; died in Hopsy, Ark., January 22, from heart disease.

Frank Eugene Whitney, M.D., Rochester, N. H.; New York University, New York City, 1881; aged 64; for four years town physician; died at his home, January 20, from uremia.

Charles E. Baker, M.D., Genoa, Ohio; Columbus (Ohio) Medical College, 1881; aged 60; a member of the Ohio State Medical Association; died at his home, about January 20.

Jose Florene de F. Fernandez, M.D., New York City; New York University, New York City, 1894; died at his home, January 18, from cerebral hemorrhage.

Andrew J. Lappeus, M.D., Vina, Calif.; Northwestern Medical College, St. Joseph, Mo., 1887; aged 73; died in the Red Bluff (Calif.) Hospital, January 15.

John Simmons, Middleport, Ohio (license, Ohio, 1896); aged 85; a practitioner for thirty-two years; died at his home, December 25, from arteriosclerosis.

George B. Rowell, M.D., Orleans, Vt.; University of Vermont, Burlington, 1869; aged 72; died at his home, January 16.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

NOSTRUMS IN RETROSPECT

A Review of Worthless or Unscientific Proprietary Mixtures Previously Criticized

[FOREWORD.—The article that follows is the sixth[1] of a series written for the purpose of reviewing the findings of the Council on Pharmacy and Chemistry on certain unscientific or worthless proprietary mixtures. Although the preparations which will be taken up in this series have been extensively dealt with in previous reports, the fact that they are still widely advertised and sold indicates the need of further publicity. The series is written by a man who is thoroughly conversant with the work of the Council on Pharmacy and Chemistry and can speak authoritatively on questions dealing with the actions of drugs in the treatment of disease.]

[ARTICLE VI]

FELLOWS' SYRUP, AND OTHER PREPARATIONS OF THE HYPOPHOSPHITES

By S. Q. Lapius, M.D.

We hope that it is clear to those who have read the several articles of this series that their purpose is to present evidence that will enable the reader to form a correct estimate of the literature employed in the exploitation of various nostrums. The distinction between mere assertion—however plausible, and from however eminent an authority—and evidence should again be emphasized. Satisfactory evidence rests on careful observation by those who are capable of accurately determining to what extent any changes that may be observed are due to the therapeutic agent employed and not mere accompaniments of such treatment.

When the Council on Pharmacy and Chemistry was organized in 1905 the greater part of the literature of the nostrums was so palpably misleading, the statements often so ludicrously false, that it was only necessary to call attention to this fact to have those claims collapse. As a result of the Council's work the exploiters of worthless nostrums have developed a greater degree of shrewdness in avoiding the easily exploded falsehoods. This has made it increasingly difficult to point out the exact statements on which many of the false claims now rest, even though the exploitation as a whole is as inherently dishonest as before. If a nostrum is worthless, any exploitation must be false and misleading in effect, even though not one single false direct statement is made.

A platitude may be given an appearance of importance if uttered in an impressive manner, and it may be employed to suggest far more than it categorically affirms. These two facts are appreciated by many nostrum exploiters and we find that they have adopted the impressive manner to secure attention, and the platitude to suggest far more than they could defend in direct statement. Thus we have the "lie with circumstance."

FELLOWS' SYRUP

A full page advertisement which has been appearing regularly for about a year and which must represent a good deal of money, is used to give an appearance of importance to a few words which, if printed in ordinary type, would either pass wholly unnoticed or would lead one to assume that something essential to the full meaning had been omitted. The statement, in full, reads:

"Fellows' Syrup differs from other preparations of the hypophosphites. Leading clinicians in all parts of the world have long recognized this important fact. Have you? To insure results, prescribe the genuine ℞ Syr. Hypophos. Comp. Fellows'. Reject cheap and inefficient substitutes. Reject preparations 'just as good.'"

1. The previous articles of the series are "Bell-ans," THE JOURNAL, Nov. 24, 1917; "Anasarcin and Anedemin," Dec. 8, 1917; "Pepto-Mangan," Dec. 29, 1917; "Cactina Pillets," Jan. 19, 1918; "Ammonol and Phenalgin," Feb. 2, 1918.

The only direct statement contained in the advertisement is to the effect that many clinicians have observed that Fellows' syrup and other preparations of the hypophosphites are not alike. In truth, Fellows' is not like the better preparations of this type, since after standing it contains a muddy looking deposit that any pharmaceutical tyro would be ashamed of. Technically, then, the statement is true, but it is hardly credible that the manufacturer is paying for an entire page in a medical journal to make this statement without any attempt to suggest something else.

The advertising pages of six medical journals were examined in just the order in which they chanced to come to hand. In five of these the entire advertisement of Fellows' syrup was in the words just quoted; not a single word more. In one there was the further statement:

"Not a new-born prodigy or an untried experiment, but a remedy whose usefulness has been fully demonstrated during half a century of clinical application."

These advertisements show that the exploiters of Fellows' Syrup are spending a great deal of money to induce physicians to prescribe the preparation, and it is equally evident that they wish to convey the impression that the preparation has some therapeutic value. Since we find nothing directly false, in the first mentioned advertisement at least, we must take the evident intent for consideration and determine what therapeutic value, if any, this preparation has, and whether it is advisable for physicians to employ it in any case.

The preparation, according to the statement just cited, has been in use for fifty years. As the exploiter of any preparation cites the most convincing evidence in his possession in support of his views, this claim may be assumed to be the strongest available, and if this evidence fails we must reject the contention as not proved. Here we face a dilemma, for examination of the literature used in the exploitation of Fellow's Syrup fails to disclose any evidence of the kind that we have described as satisfactory, and we are therefore forced to conclude that none has ever been found. By this it is not to be implied that no reputable physician has ever reported favorably concerning the therapeutic effects of this preparation. It is quite possible that an extensive literature of that sort might be found if one examined the older medical journals. But the day has passed when every improvement that follows the administration of a preparation is blindly attributed to the drug in question. Clinical research today is far more exacting.

We will assume that the reader who has investigated the question with an open mind will have come to the decision that the contention that Fellows' syrup is of especial therapeutic value is not proved. We might rest with that assumption and ask the clinician whether he is prepared to use a nostrum that has been before the medical profession for half a century without any satisfactory evidence having been gained that it possesses therapeutic value. We might ask him whether he would be willing to tell his patients that he was prescribing such a nostrum for them in the face of the absence of any such evidence of its value.

THE INERTNESS OF THE HYPOPHOSPHITES

But we prefer to go even further and show him that not only is there an entire absence of any evidence of its therapeutic value so far as we have been able to learn, but in addition there is an abundance of evidence that the hypophosphites are devoid of any such therapeutic effect as they were formerly reputed to have, and that, in fact, they are, so far as any effect based on their phosphorus content is concerned, singularly inert.

While we have thus far taken the Fellows' preparation as the subject of the discussion, we may take a broader view and examine the subject of the hypophosphites in general, and the phosphorus-containing substitutes that have been introduced from time to time. It hardly needs to be said that if the hypophosphites are without therapeutic value, it is impossible to give them value by combining them in a muddy-looking, ill-made preparation such as Fellows' Syrup. Such evidence was submitted to the medical profession in a report of the Council on Pharmacy and Chemistry which was published in THE JOURNAL, Sept. 2, 1916, p. 760, and we would strongly advise any one who is disposed to act on the suggestion contained in the advertisements of Fellows', and other hypophosphite preparations, to read that report in full and think the matter over before prescribing one of these nostrums. Quoting briefly from the report in question:

"Although the overwhelming weight of evidence was against the probability that the hypophosphite preparations are of value as therapeutic agents, the Council thought it well to investigate the subject. Dr. W. McKim Marriott of Baltimore was therefore requested to review the evidence for and against the therapeutic usefulness of the hypophosphites and to conduct such experiments as seemed necessary."

The Council was not content to rest on the mere absence of evidence for the value of these preparations or any one of them, but sought to obtain evidence that would fulfill the conditions mentioned above, and in pursuance of this plan it secured the cooperation of a trained investigator, one who would work under the best of conditions for learning the truth. The results of Dr. Marriott's investigation were published in THE JOURNAL Feb. 12, 1916, p. 486, and should be read by everyone who has any interest in the problem. Lest some of our readers may fail to refer to the original of Marriott's paper we will quote briefly from it:

"None of the subjects of the experiment experienced any effect whatsoever from the administration of the drug . . . Almost all of the ingested hypophosphite is eliminated unchanged. . . .

"These experiments (Forbes) demonstrate conclusively that the hypophosphites possess no specific value as a source of phosphorus for the body. . . . It is doubtful if there are any conditions in which the body suffers from lack of phosphorus. Even should such conditions exist, phosphorus, in the form that it occurs in the ordinary foods, or as phosphates, is more efficient in supplying the deficit than hypophosphites that must be oxidized before utilization and which are only about 15 per cent. oxidized if at all. For example, half a glass of milk contains more available phosphorus than three large doses of hypophosphites of 15 grains each, as great a dosage as is usually given.

"What, then, is the therapeutic value of hypophosphites? There is no reliable evidence that they exert a physiologic effect; it has not been demonstrated that they influence any pathologic process; they are not 'foods.' If they are of any use, that use has never been discovered."

The case seems to stand about like this: A nostrum maker spends thousands of dollars to tell physicians that his cloudy preparation is not like other preparations, and physicians are expected to accept that as convincing evidence that they should prescribe and their patients, perforce, take it. This too, in spite of the evidence gained by careful scientific investigators that the hypophosphites in fairly large doses contain less available phosphorus than half a glass of milk, and that there is no evidence available that they exert any therapeutic effects at all.

Should we take the meaningless statement of a nostrum maker, who does not submit evidence of any therapeutic value of his preparation—unless one can call certain careless habits of prescribing evidence—and assume the responsibility of prescribing a nostrum that according to all scientific evidence available is useless, and of no more effect than a few teaspoonfuls of milk, so far as its hypophosphite content is concerned? It may be argued that it possesses some value because of its bitter nature. We will not deny that it is bitter; so is strychnin, so is quinin, so are scores of simple drugs, but what physician would care to admit to his patients that he did not know how to prescribe a simple bitter, such as nearly every layman can select for himself, without recourse to a preparation such as Fellows' Syrup?

We have felt that it is not wholly satisfactory to discourage the use of a given nostrum without making an effort to assist the physician in choosing wisely in the treatment of the condition for which the nostrum is claimed to be useful. In the present instance, however, we fear that would prove a task beyond our powers, for the hypophosphites have been used in such a variety of conditions that the discussion would have to include nearly the whole materia medica if we were to follow our usual procedure.

Correspondence

NATIONAL LICENSURE FOR PHYSICIANS IN THE FEDERAL SERVICE

To the Editor:—I wish to voice the opinion of almost every physician with whom I have conversed on the granting of national licensure to all physicians in the medical service of the U. S. Army or Navy, enlisted in the Medical Reserve Corps, National Guard or regular Medical Corps. These men should be granted the privilege of practicing medicine in any place in the United States at the end of the war, without taking a state board examination. In my conversation with officers some say that they do not know whether or not they will go back to the place from which they came. Others, younger men, argue that they had not been given the time to take their state board examinations in the state in which they want to practice, but took them where they were taking their internship, and that that state does not reciprocate with their own state. As they might be in the service anywhere from three to five years, this would make state examinations more difficult than if they had taken them immediately after graduation.

If we are good enough to care for our soldiers, we certainly are good enough to practice in any state in the Union. We are showing our patriotism by serving our government, and each state of the Union ought to reciprocate by granting us a license. All physicians given an honorary discharge at the conclusion of the war should be granted the privilege of practicing medicine any place in the United States.

LIEUT. DONALD BROWN, M.D., M. R. C., U. S. Army.

To the Editor:—Will you kindly inform me whether a medical officer of the U. S. Navy would be given a license to practice in civil life without taking the various state board examinations and, if this privilege is not extended by all the states, whether it is extended by any and, if so, which? In view of the rigid examinations necessary to pass in order to get a commission in the regular corps of the Navy and Army, it appeals to my mind that the states would be perfectly justified in assuming that all medical officers are mentally qualified and entitled to a certificate to practice and to obtain a license.

EUGENE C. LOWE, M.D., Assistant Surgeon,
U. S. Navy, U. S. S. *Minnesota.*

[COMMENT.—The above letters are samples of many received by THE JOURNAL. The regulation of medical practice comes under the police powers of the state; the only way to accomplish what our correspondents desire is to secure favorable action on the part of each state. No state, so far as we know, recognizes the Medical Reserve Corps commission. Seven states—Alabama, California, Colorado, Illinois, North Dakota, Virginia and Wisconsin—register, without examination, retired officers of the Medical Corps.—ED.]

"THE TAX ON OLEOMARGARIN"

To the Editor:—In THE JOURNAL, Jan. 19, 1918, p. 164, an editorial discusses the advisability of removing the special tax on colored oleomargarin, and quotes from one of the newspapers a paragraph in which, *inter alia,* it is stated that the fats used in the manufacture of butter substitutes are as nutritious as butter fat. While not specifically denying this statement, the editorial refers to the larger content of vitamins in butter fat, and so sets some opposition to the newspaper assertion, which, like most of such assertions, is made without careful inquiry.

Your editorial is in error, however, in saying that a substantial economic advantage will come to the mass of the people if the tax is taken off. I have been familiar for many years with the conditions surrounding the selling of butter substitutes. I was among the first of American chemists to assist in the control of the sale, and as chemist to the dairy and food commissioner of Pennsylvania, made, in association with Dr. William Beam, many hundreds of analyses of samples sold in Philadelphia and its vicinity. In the course of this work we devised the Leffmann-Beam method of distinguishing between butter fat and its substitutes, a method now official in France, Germany and the United States, and probably elsewhere. Our experience was that oleomargarin, when colored and otherwise prepared to resemble butter, always meets the ultimate consumer at prices so near that of the true article as to leave the profit almost wholly with the middleman. If the special tax is taken off oleomargarin, it is possible that the large department stores and the chain stores will label it correctly, but the small shops and food pedlers, from whom the wretched dwellers of the slums obtain their supply, will sell the article as butter at possibly a few cents below the ruling butter figures, but realize a large profit on their wholesale rate. Similarly, boarding houses, restaurants and even grand hotels will take advantage of the easy substitution, and place oleomargarin on the tables instead of butter, without notice to the customer either by direct word or in the bill. "Bread and butter" will be charged, but "bread and oleo" be furnished. After all, the discussion is academic, for the agrarian interests of the country are much too powerful to permit the experiment to be made. A very large part of the difficulty in introducing oleomargarin as a substitute for butter along lines in which its difference would be of less moment is the obstinacy of the middle class women and servants. Among that curious population of eastern Pennsylvania, commonly known as the "Pennsylvania Dutch," butter is often served without salt and without color. It looks like lard, and is not generally appetizing to those who see it for the first time. On the other hand, butter and butter substitutes intended for certain West India islands must be colored almost a mahogany red to be salable.

There is a large supply of animal and vegetable fats that can be used to replace butter in a limited way, but no good will come by permitting the sale of colored oleomargarin freely. Some months ago, the women who preside over my household thought that economy might be secured by using oleomargarin in place of lard, but soon found their mistake. Commercial oleomargarin contains considerably more water than does lard, and apart from the economic loss, makes a good deal of trouble by its sputtering when heated. Nevertheless, if housewives and those they serve could rid themselves of the idea that butter ought to be yellow to be wholesome, a limited use could be made of oleomargarin even at the table; but I do not think it can wholly replace true butter as an application to bread. Even in cooking, it is a question if some other fats are not as wholesome and cheaper.

HENRY LEFFMANN, M.D., Philadelphia.

OPEN SAFETY PIN IN AN INFANT'S STOMACH

To the Editor:—The report of an open safety pin in an infant's stomach in THE JOURNAL, Dec. 22, 1917, might lead to the impression that an operation is always necessary in such cases. I therefore report the case of an 8 months old baby who swallowed a 1½ inch open safety pin, November 21, about 2 p. m., and later passed it. Roentgenograms taken at the request of the attending physician, Dr. Corliss Keller of Hamilton, Ohio, showed the pin to be in the stomach. Thirty-six hours later the pin was in the same position, and as the separation of the open ends of the pin, as shown in the roentgenogram, seemed to be considerably greater than the diameter of an infant's pylorus, I advised bringing the child to a hospital for operation. Several more pictures were made at the hospital, and at the end of fifty-two hours the operating room was ordered to be made ready. A final picture, however, showed that the pin had apparently passed from the stomach. Operation was then advised against, and in the following thirty-six hours the pin was watched by means of the fluoroscope as it traveled through the intestinal tract, and it was passed at the end of ninety-six hours. Only during the first twenty-four hours did the child show any clinical symptoms. The pin was open at least three fourths of an inch; but as the blunt end evidently engaged the pylorus, the probabilities are that the pyloric sphincter closed the pin

sufficiently to allow it to pass. In the majority of instances one can count on the passage of a foreign body through the intestine if it has been able to pass through the pylorus.

D. W. PALMER, M.D., Cincinnati.

AN UNUSUAL COMPLICATION OF TYPHOID FEVER

To the Editor:—The following case seemed to be of sufficient interest to report:

Aug. 10, 1917, a 12 year old boy was brought to St. Joseph's Hospital with typhoid fever. Relatives stated that he had seemed ill for the previous ten days. Sixteen days after entering the hospital, the patient rather abruptly lost the power of speech, although he was able to answer questions by signs. When spoken to he usually began to weep. After ten days the aphasia gradually disappeared, and in two weeks speech was normal. At this time the patient's mother and nurse both noticed that he used his right hand for every purpose, whereas before his illness he had been left handed to an unusual degree. From this time on, convalescence was uneventful. A letter, dated Dec. 26, 1917, reports that to all appearances the boy is right handed, and is now able to use both hands equally well.

ROY E. THOMAS, M.D., Phoenix, Ariz.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PROPHYLAXIS OF OPHTHALMIA NEONATORUM

To the Editor:—1. For about how many years has the Credé method of protecting the eyes of children at birth been generally observed?

2. At first was there opposition by some physicians, or by others?

3. Are there states in the Union which have passed laws making this matter obligatory?

H. C., M.D., Colorado.

ANSWER.—1. The Credé method of employing a 2 per cent. solution of silver nitrate in the prophylaxis of ophthalmia neonatorum was announced about 1880, and its use has been of gradual growth since.

2. There has been opposition to its use and neglect on the part of physicians and midwives, even where it has been made compulsory by law. Objection has been raised because sometimes the 2 per cent. solution causes slight irritation, and in a few instances a more or less persistent redness of the conjunctiva. Some advocate the use of a 1 per cent. solution, and in some states this is the required strength.

3. According to Allport, the following states up to 1916 had made prophylaxis compulsory: Michigan, Idaho, Wisconsin, Rhode Island, North Dakota, Ohio, Tennessee, North Carolina, Nebraska, Illinois, Indiana and Louisiana; the following furnish the prophylactic free: New Jersey, Massachusetts, Utah, Vermont, Wisconsin, Rhode Island, Kentucky, Louisiana, Ohio, California, Illinois, District of Columbia, Kansas, New York and Washington. Each year adds to the states making prophylaxis compulsory.

Many other states have other special legislation concerning ophthalmia neonatorum.

The following may be consulted:

Allport, Frank: State Legislation Concerning Ophthalmia Neonatorum, Paper 2, Ophthalmology, January, 1916, p. 276.
Credé: Prevention of Ocular Inflammation in the New-Born, 1884.
Lewis, F. Park: Ophthalmia Neonatorum, Conservation of Vision Series, Pamphlet XI, American Medical Association.

INCOMPATIBILITY OF QUININ AND ASPIRIN

To the Editor:—I have been in the habit of writing the following prescription for colds:

Aspirin
Quinin sulphate
Dover's powder āā q. s. gr. 5

A drug company of my town gave to a firm of manufacturing pharmacists an order for capsules containing the foregoing drugs, and the latter did not want to fill the order, unless, as set forth in a letter, the drug company was "willing to assume all responsibility for any untoward effect that might result from the administration of a combination of this kind." The reason given for hesitation to execute the order was:

"Acetyl salicylic acid and quinin sulphate are incompatible, and of late medical journals have contained numerous cases where the administration of combinations of this nature have produced very bad effects. While we have not made any special investigation along this line, it seems that in the decomposition of acetyl salicylic acid in connection with the quinin, some poisonous substance, probably quinotoxin, is formed."

Can you give me any information along this line? My experience with this combination has been very satisfactory, but if it is incompatible I want to discontinue the use of it. J. H. M., Idaho.

ANSWER.—In a discussion of the incompatibility of quinin with acetylsalicylic acid and other organic acids (Queries and Minor Notes, Dec. 18, 1915, p. 2187), THE JOURNAL said:

> By long-continued heating with glacial acetic acid or by fusion of the alkaloid salts, some of the cinchona alkaloids may be converted into isomeric products which possess extremely poisonous properties. Experiments have also shown that by acting as catalyzers, slightly dissociated acids, such as acetylsalicylic (aspirin), citric, malic, acetic or tartaric acid, under the influence of heat, may convert quinin into its poisonous isomer, quinotoxin, and cinchonin into cinchotoxin. At the temperature of from 98 to 102 C. (208.4 to 215.6 F.) the conversion is practically quantitative; at 37 C. (98.6 F.—normal body temperature) the reaction goes on much more slowly, amounting to about 2 per cent. in forty-eight hours. The danger of poisoning through conversion of quinin into quinotoxin in the body cannot be great, but it is well to keep the possibility in mind. The formation of a dangerous amount of the poisonous product would probably be greatly favored if the mixture—quinin and aspirin, for instance—had been made up for some time. Suspensions of the alkaloid in flavored syrups, with organic acids, etc., might be regarded with suspicion; likewise elixirs, such as iron, quinin and strychnin, which usually contain citrates or tartrates. The foregoing applies especially to the alkaloid and to such salts as quinin tannate.

In THE JOURNAL, Oct. 20, 1917, p. 1375, a physician calls attention to the tendency of capsules containing quinin and aspirin to get soft, showing a physical and probably a chemical change.

CALCIUM IODID IN TUBERCULOSIS—VENCALXODINE

To the Editor:—Would you kindly furnish me such information as you have as to the value of calcium iodid intravenously in tuberculosis? My attention has been directed to the preparation called Vencalxodine put out by the Intravenous Products Company of Denver. What is the standing of this firm?

WALTER E. VEST, M.D., Huntington, W. Va.

ANSWER.—We know of no work which indicates that the intravenous administration of calcium iodid in tuberculosis is of value. It has not been demonstrated that tuberculosis is associated with a deficiency of calcium (THE JOURNAL, June 23, 1917, p. 1915); on the other hand, the experiments indicate that the administration of calcium does not change the calcium content of the blood (THE JOURNAL, Feb. 2, 1918, p. 313). Furthermore, there is no evidence to warrant the intravenous administration of iodids.

The Council on Pharmacy and Chemistry has not examined Vencalxodine; it has, however, examined and published reports on the following preparations of the Intravenous Products Company: Venarsen (THE JOURNAL, May 22, 1915, p. 1780); Venodine (THE JOURNAL, June 26, 1915, p. 2155), and Venosal (THE JOURNAL, Jan. 5, 1918, p. 48).

Work of Infantile Paralysis Committee.—The citizens' health committee, appointed by the mayor of Newark, which began its work in August, 1916, in the after-care of patients the victims of infantile paralysis, has made its report to the Board of City Commissioners. The committee was supplied with funds by public subscription to the amount of about $22,000, of which $18,500 was spent, leaving a balance unexpended of a little over $3,500. There came to the notice of the committee 1,152 cases, all of which were investigated, and of this number, 956 patients were placed under the care of trained nurses. At present there are 286 patients under the committee's care, and arrangements have been made to continue their treatment until the fund is exhausted. Of the total number of cases, 781 were discharged, fifty-seven patients died and twenty-eight left the city when their families moved. Those discharged are classified as follows: recovered, 224; apparently recovered, 79; improved, 100; to family physician, 232; to hospitals, 30; to other care, 15; moved away, 72; refused care, 29. Of the fifty-seven who died, not all were under the committee's care, and sixteen of the deaths of those under its care were from causes other than infantile paralysis. Braces to the number of 437 were purchased up to Nov. 1, 1917.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, March 5. Sec., Dr. L. P. Dawes.

CALIFORNIA: Los Angeles, Feb. 18. Sec., Dr. Charles B. Pinkham, State Capitol, Sacramento.

CONNECTICUT: New Haven, March 12-13. Sec., Dr. Charles A. Tuttle, New Haven.

CONNECTICUT (H): New Haven, March 12. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

IDAHO: Pocatello, April 2-3. Sec., Dr. Ray H. Fisher, Rigly.

MAINE: Portland, March 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MASSACHUSETTS: Boston, March 12-14. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

MINNESOTA: Minneapolis, April 2-4. Sec., Dr. Thos. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: St. Louis, March 19-21. Sec., Dr. George H. Jones, Capitol Bldg., Jefferson City.

MONTANA: Helena, April 2. Sec., Dr. S. A. Cooney, 205 Power Bldg., Helena.

New Hampshire June Examination

Dr. W. T. Crosby, secretary of the New Hampshire State Board of Medical Examiners, reports the written examination held at Concord, June 25-26, 1917. The examination covered 12 subjects and included 60 questions. An average of 75 per cent. was required to pass. Six candidates were examined, of whom 5, including 1 osteopath, passed, and 1, an osteopath, failed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Johns Hopkins University		(1914)	75.5
University of Maryland		(1916)	79
Boston University		(1917)	81.6
University and Bellevue Hospital Medical College		(1910)	84.7

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Kentucky School of Medicine of Louisville		(1905)	Vermont
Boston University		(1900)	R. Island
Tufts College Medical School		(1915, 2)	Mass.
University of Vermont	(1908) Vermont;	(1910)	Mass.
		(1913)	New Jersey

Alaska July Examination

Dr. L. P. Dawes, secretary of the Alaska Board of Medical Examiners, reports the written examination held at Juneau, July 4-6, 1917. The examination covered 9 subjects and included 66 questions. An average of 75 per cent. was required to pass. Two candidates were examined, both of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery		(1917)	84
University of Texas		(1899)	87

Wyoming March, June and October Examinations

Dr. H. E. McCollum, secretary of the Wyoming State Board of Medical Examiners, reports the written examinations held at Laramie in March, June and October, 1917. The examinations covered 10 subjects and included 100 questions. Fifteen candidates were examined, including 2 osteopaths, all of whom passed. An average of 75 per cent. was required to pass. Fourteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado		(1916)	83
Chicago Coll. of Med. and Surgery	(1916) 80.2;	(1917)	87
Jenner Medical College		(1916)	89
Rush Medical College		(1903)	83.4
Ensworth Medical College		(1905)	82
Maryland Medical College		(1912)	86
John A. Creighton Med. Coll. (1914) 87.5; (1915) 85;		(1917)	83
Lincoln Medical College		(1917)	87
University of Nebraska		(1916)	85
Trinity Medical College		(1901)	83

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver College of Medicine		(1899)	Illinois
Bennett College of Eclectic Med. and Surg.		(1908)	Illinois
Rush Medical College		(1900)	Illinois
Drake University		(1909)	Illinois
State University of Iowa College of Medicine		(1911)	Iowa
Kansas Medical College		(1897)	Kansas
University of Kansas		(1907)	Kansas
Baltimore Medical College		(1913)	W. Virginia
Ohio State University College of Medicine		(1917)	Ohio
University of Oklahoma		(1915)	Utah
Western Pennsylvania Medical College		(1895)	Penna.
Medical College of the State of South Carolina		(1899)	Utah
Memphis Hospital Medical College		(1901)	Tennessee
Wisconsin College of Physicians and Surgeons		(1912)	Wisconsin

Utah October Examination

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 1-2, 1917. The examination covered 18 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
University of Colorado	(1916) 1;	(1917)	1
Jefferson Medical College		(1917)	1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery		(1913)	Idaho

Book Notices

DIETETICS FOR NURSES. By Julius Friedenwald, M.D., Professor of Gastro-Enterology in the College of Physicians and Surgeons, Baltimore, and John Ruhräh, M.D., Professor of Diseases of Children in the College of Physicians and Surgeons, Baltimore. Fourth Edition. Cloth. Price, $1.50 net. Pp. 467, with 8 illustrations. Philadelphia: W. B. Saunders Company, 1917.

In this edition the authors have brought the subject of dictetics for nurses up to date. This subject has been receiving much more attention in recent years than it formerly did, and a considerable number of advances have been made. This applies particularly to the work on diabetes, and the section on this subject has been largely rewritten, and a number of new diet lists added. The book covers the subject in great detail, and will be found exceedingly valuable, not only for nurses, but also for physicians who wish a shorter work on the subject than the larger book by these authors, entitled "Diet in Health and Disease." An especially excellent section of the book is that on diet in ulcer of the stomach. The authors describe the treatment followed by Boas, the Lenhartz diet and finally the Sippy diet, which they believe is likely to replace all other methods of treatment.

IMPOTENCE AND STERILITY WITH ABERRATIONS OF THE SEXUAL FUNCTION AND SEX GLAND IMPLANTATION. By G. Frank Lydston, M.D., D.C.I. Cloth. Price, $4. Pp. 333, with illustrations. Chicago: Riverton Press, 1917.

In this work the author discusses the disorders of sexual function, including the various researches that he himself has conducted on this subject. The first two thirds of the book cover the phases and contain a discussion of these disorders, including numerous cases and excellent recommendations as to treatment. The final third of the book is devoted to a report of the author's researches on sex gland implantation, much of which has appeared in recent periodical literature. As a result of his work, the author concludes that successful total or partial implantation of human sex glands in both male and female is practicable, and that by this method various disease conditions may be greatly benefited, as successful implantation supplies the internal secretions of these organs which are "stimulant, nutrient, tonic and reconstructive, and should increase resistance to disease." He points out, finally, that as matters now stand, only persons in affluent circumstances, and very few even of these, can avail themselves of this procedure.

MANUAL OF LABORATORY DIAGNOSIS. By Stella M. Gardner, M.D., and Mary C. Lincoln, Ph.B., M.D. Cloth. Price, $1.25. Pp. 133. Chicago: Chicago Medical Book Company, 1917.

This is an extremely brief outline of common diagnostic methods. It is incomplete, without illustration, and suffers by comparison with other works on laboratory diagnosis.

Medicolegal

Liability for Damages from Criminal Operation

(Lembo vs. Donnell (Me.), 101 Atl. R. 469)

The Supreme Judicial Court of Maine, in overruling a motion by the defendant for a new trial after the jury returned a verdict of $881.58 for the plaintiff, says that it was alleged that the defendant performed an illegal opertation on the plaintiff's wife to produce a miscarriage, and thereafter negligently and unskilfully treated her, whereby the plaintiff was put to large expense for nursing, medicine and medical attendance for her, and was deprived of her companionship and services for a long space of time. The court thinks the evidence was abundantly sufficient to justify the jury in finding that both of the allegations on which the action was based were established. Nor did the defendant succeed in making it appear to the court that the damages awarded were excessive. The plaintiff's wife became infected with blood poisoning as a result of the criminal operation on her. The defendant attended her for about four weeks following the operation. Under his treatment she became desperately ill, and as soon as another physician was called she was removed to a hospital, where her case was diagnosed as almost hopeless. She remained in the hospital seven weeks, during which time ten operations were performed to remove pus from different parts of her body. She had recovered only in part at the time of the trial, about six months after she left the hospital. The evidence showed that the plaintiff was put to large expenses for nursing, medicine and medical and surgical services in an effort to save his wife's life and to restore her to health as much as possible. The jury may well have found from the evidence that his actual disbursements and liabilities necessarily incurred on that account amounted to substantially $600. In view of that fact, and also that the plaintiff was deprived of the services of his wife for a long space of time, and that he suffered great anxiety and distress of mind on account of her serious illness, an awaard of $881.58 in his favor could not be regarded as excessive.

Property Rights and Duties of a Public Charitable Hospital

(O'Brien vs. Physicians' Hospital Association (Ohio), 116 N. E. R. 975)

The Supreme Court of Ohio affirms a judgment permanently enjoining the county treasurer from demanding or collecting certain taxes on the property of the hospital association. The court says that the property was purchased with trust funds donated for the purposes of a public charity hospital, and is impressed with that trust. It cannot be withdrawn from the uses of this trust at the will of the trustee, or of any or all of the donors of the fund. The donors of this fund have parted with all private ownership in the fund itself. They have no property interest in the fund, or the real estate purchased with the fund, and no rights whatever in relation thereto, except to compel the administration of the trust in accordance with the terms of the gift. The title to this property is in the corporation only as a trustee for the purposes of this trust, and it cannot divert it to any use other than public charity. Every dollar received by this association from patients who are able to pay, or from other sources, immediately becomes impressed with the same trust, and cannot be diverted to private profit. This corporation can be compelled by a court of competent jurisdiction to administer this trust according to the intent and purpose of the donors of the fund; or, on its failure to do so, it can be removed, and another trustee appointed who will administer it. It is true that this corporation is not compelled to use this property for hospital purposes. It may find the property inadequate for its needs, and purchase other property for the purposes, or it may find it unnecessary to occupy the entire property for a hospital, and may sell it, or rent the whole or a part, as may in its judgment be for the best interest of the trust; but the funds obtained from sale or rentals would still be trust funds that could not be devoted to any purpose other than the purposes of the trust, although the property itself would no longer be used exclusively for public charity. If, however, it uses this property exclusively for hospital purposes, then such hospital must be a public charitable hospital, and as such its doors must open to those who are unable to pay, the same as they open to those who have means to contribute further sums to this public charity commensurate in a degree at least with the hospital accommodations they receive. The fact that it may receive pay patients, without losing its character as a public charitable hospital, does not authorize it to receive pay patients in such numbers as to exhaust its accommodations, so that it cannot receive and extend hospital service to the usual and ordinary number of indigent patients applying for admission under proper rules and regulations of the board of trustees—excepting, of course, the cases it has no facilities for handling. The first concern of a charitable hospital must be for those who are unable to pay. If, after taking care of these, it still has further accommodations, there can be no objection to making use of these for pay patients in order to increase the fund which may be at its disposal for the benefit of the poor. It may be, however, that it cannot always nicely measure these demands. It is sufficient if it conforms its conduct along the lines of its experience as to the ordinary and usual demand made on it by charity patients, provided, always, that it act in good faith and in accord with the purposes of its organization. If the hospital association fails in these particulars, the remedy is not by placing the property on the tax duplicate, but by action to enforce a proper administration of the trust, or the revocation of its charter for abuse of its corporate franchise, and the appointment of another trustee to administer the trust.

Optometry Law Unconstitutional

(People vs. Griffith (Ill.), 117 N. E. R. 195)

The Supreme Court of Illinois, in reversing a judgment of conviction of the defendant of practicing optometry without a license, holds that the act of 1915 to regulate the practice of optometry in the state of Illinois is unconstitutional. The court says that Section 1 of the act gives a definition of optometry as including every means for the measurement of the powers of vision and the adaptation of lenses for the aid thereof, other than the use of drugs, medicine or surgery. A woman asked to have her eyes tested for reading, and the defendant put on her head a try frame, in which he could place different lenses to see whether she could read letters which he placed at a distance, and, when he found lenses that suited her, she contracted to pay him $12.50 for glasses, paid him a dollar, and took a receipt. The trial court found, and counsel insisted, that what the defendant did consisted of the practice of optometry under the foregoing definition, which is broad enough to include every measurement of the power of vision and fitting glasses to aid the vision. Assuming that what the defendant did was the practice of optometry, the question was whether an act requiring a license for doing those things is valid. What the defendant did was to try different lenses, and when the customer said she could read the letters at a distance she practically decided what glasses would suit her and contracted for them. If changing lenses until the customer was suited, or placing letters at a distance to be read, is measurement of the power of vision and the adaptation of lenses, it is no more than the measurements made by any person who undertakes to fit a person when the person himself decides what answers the purpose. Such measurements, if they are so called, have no relation to the public health, comfort, safety or welfare, such as to require a course of previous study and an examination and payment of a license fee. This court does not say that it is beyond the power of the General Assembly to enact a statute requiring a previous course of study and an examination of applicants to practice the calling or profession of examining the eye to ascertain if there are defects which can be remedied by the use of lenses, the determination of the accommodation and refractive states of the eye, the range and power of vision and abnormal conditions, and the adaptation of lenses to correct defects, or to require a license to practice such calling or profession; but the act now in question, as construed by the parties and counsel, is not within the scope of the powers intrusted to the General Assembly.

Construction of Provision as to Compensation of Physicians

(Holland vs. Zeuner (Mass.), 117 N. E. R. 1)

The Supreme Judicial Court of Massachusetts says that this was an action whereby the plaintiff sought to recover for professional services rendered by him as a physician to the defendant, who received injuries arising out of and in the course of his employment by a subscriber under the workmen's compensation act of that state. The defendant's injury was reported to the industrial accident board by his employer. He was referred to an impartial physician, on whose report an agreement for compensation was made and allowed. The plaintiff attended the defendant from the time of the injury until recovery. He was paid by the insurer for his services rendered during the first two weeks after the injury. The remainder of his bill was involved here. The defendant contended that there could be no recovery because the bill had not been approved by the industrial accident board. The court affirms an order dismissing report.

It is provided by the workmen's compensation act that:

"Fees of attorneys and physicians and charges of hospitals for services under this act shall be subject to the approval of the industrial accident board. If the association and any physician or hospital, or the employee and any attorney, fail to reach an agreement as to the amount to be paid for such services, either party may notify the board, which may thereupon call for the formation of a committee of arbitration," etc.

The court thinks it is manifest from this section as a whole that it does not cover fees for services which are rendered outside the act. The second sentence makes it plain that the fees of the physician which are "under the act" are those for which the insurer must pay. It is only in the case of a disagreement between the insurer and the physician that that board is to be notified and the disagreement settled. The employee is not mentioned at all in this connection. The only disagreement in connection with which he is mentioned is one with his attorney. So far as concerns physicians, this section refers only to the services for which, under Part 2, Section 5, the insurer is liable. It does not apply to arrangements for professional attendance between a physician and an employee for which the employee is liable and the insurer is not, even though relating to an injury for which the insurer may be liable under the act. All of the cases which have arisen in this commonwealth heretofore have had to do with physicians' fees for which the insurer was responsible, and none of them are at all at variance with the conclusions here reached.

As to Showing Contingent Fees of Witnesses

(Missouri, K. & T. Ry. Co. of Texas vs. Hart (Tex.), 196 S. W. R. 960)

The Court of Civil Appeals of Texas, in affirming a judgment for damages for personal injuries in favor of plaintiff Hart, holds that there was no error in excluding as evidence certain testimony offered by the defendant railway company as to the contingent fees in other cases of a physician who was one of the physicians that treated the plaintiff for the injury he claimed he had suffered and who was a witness for him in this case. The court says that the defendant, on its cross-examination of this witness, proved by him that in the nine years preceding the trial he had been a witness for plaintiffs, represented by one of the attorneys for the plaintiff in this case, in about 110 damage suits against railway companies, and had never been a witness for a defendant in such a suit. The defendant complained that the trial court refused to permit it to prove further by the witness that he had been paid contingent fees for testifying in a number of the suits, and then had a suit pending in the district court to recover $700 for testifying in one of them, in which he alleged in his petition that it was on his testimony that the plaintiff in that suit had recovered a large judgment against the defendant. It would have been permissible for the defendant to show, if it could, that a fee other than the statutory one was to be paid the witness if the plaintiff recovered a judgment against it in this case, and doubtless it would have been permitted to make such proof had it offered to do so. But proof that the witness had received, or claimed a right to receive, contingent fees for testifying in other cases would not of itself tend to show interest on his part in the result of this suit, or bias against the defendant.

Society Proceedings

ANNUAL CONGRESS ON MEDICAL EDUCATION, PUBLIC HEALTH AND MEDICAL LICENSURE

FOURTEENTH ANNUAL CONFERENCE OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

Held in Chicago, Feb. 4, 1918

Dr. Horace D. Arnold, Boston, in the Chair

Council Problems and Policy

Dr. Horace D. Arnold, Boston: The Council on Medical Education has until now had but one chairman, Dr. Arthur Dean Bevan, since it was established in 1904. The remarkable success in raising the standards of medical education in so short a time has been due chiefly to Dr. Bevan's broad, progressive conceptions, and to his rare tact and good judgment.

The Council has voted to submit to the next meeting of the House of Delegates for approval a slightly modified basis for classifying medical colleges, and to ask authority to proceed with a general reclassification on this new basis. It has become evident that after the war there will be a great opportunity for graduate instruction for the medical schools of this country, not only for our own returning medical offices, but also for physicians from the nations now our allies, who will look to this country for the best organized opportunities for such study. Many opportunities for advanced medical study and work already exist in this country, but they are little known and poorly organized. The work of a committee, appointed a year ago to consider higher degrees in medicine, has been extended by the Council to include the collection and publication of data on graduate medical instruction.

The standardization of hospitals and the development of better conditions for intern service urgently demand the attention of the Council, which will push this work and cooperate with other agencies now studying these problems.

In regard to the various medical cults, we should emphasize the fact that the success of any treatment used to relieve those who are ill depends on a proper training of those who are to administer that treatment.

The importance of the maintenance of the present high standards of medical education should be emphasized. The opportunity afforded by the examination of physicians for Army service, together with the experience already gained in observing the deficiencies of many of the physicians thus selected in the various camps, is the best possible proof that the requirements are not too high, and the best possible reason for maintaining these standards.

[See article by Dr. Arnold, this issue, p. 451.]

Recent Improvements and Further Needs in Medical Education

Dr. N. P. Colwell, Chicago: During the last fifteen years, the improvement of greatest importance has been the increase in the preliminary qualifications required of medical students. Without a training in physics, chemistry and biology, students would be handicapped, however well equipped the medical school might be with teachers and laboratories. The higher admission requirements were adopted voluntarily by the majority of medical schools, and this increase in many instances has been supported by the local state licensing boards. This action by state boards induced other medical colleges, which would not do so voluntarily, to adopt the higher standard. It is usually those interested in medical schools of the latter type that are ready to seize on any pretext to urge a retrogression in entrance requirements. They are now urging the country's "dire need of doctors" as a reason for returning to lower entrance standards.

In recent years, the remarkable increase in the demand for medical graduates as hospital interns, health officers, medical teachers, and the like, has been due to the greatly improved

qualifications of those now graduating from our medical schools. This demand did not exist formerly because the graduates then turned out were not qualified educationally or professionally to fill those positions satisfactorily. The present demand, therefore, does not call for lower educational standards, but for a continuation of the entrance requirements and improved teaching methods now enforced by the majority of medical schools. Once the war is over, the better colleges will easily supply all demands. This is evidenced by the fact that, from the better medical schools, the number of graduates has increased steadily for the last five years, while the number of those graduating from the lower grade colleges has steadily decreased.

Another claim is that higher requirements are responsible for the development and extension of drugless cults. But osteopathy had reached its acme before the present campaign for higher medical education began, and the large financial returns from the teaching of osteopathy doubtless led to the "discovery" of the later cults, which, in fact, are mostly offshoots of osteopathy. The increased standards of medical education will eventually solve the medical cult problem. Heretofore, some medical colleges were as bad as some of the drugless cult institutions, and many who graduated from low grade medical colleges had less real culture than some of the cult practitioners. Under a continuance of the higher standards of medical education, however, the line of demarcation between physicians and cult healers will broaden into a zone so wide that any one can distinguish between them.

The problem of medical cults is slowly but surely being solved. Their lack of adequate educational requirements is becoming known, and of late most court decisions have been against them. National and state supreme courts have decided that any one who treats human disease by any method is practicing medicine, and this carries the logical conclusion that all those licensed to treat the sick should have a training in the fundamental medical sciences. The United States Supreme Court has shown that osteopaths—and the same argument applies as to other medical sects—should have the same training as is required of physicians. No new sect in medicine should obtain recognition unless its educational requirements are as high as those now required of physicians.

State governments are now trying to avoid a multiplicity of boards and at the same time to guarantee that all who treat the sick shall have an adequate education. In each of several states, practitioners of all schools are licensed by a single medical board. Some states require that all practitioners shall possess the minimum educational qualifications, after which they are licensed as physicians and may practice as they please. The most recent scheme in licensure is that adopted in Illinois, where one board licenses not only physicians and other practitioners of the healing art, but also dentists, pharmacists, midwives and those in other licensed occupations. The most promising feature is that the enforcement of the new law is in the hands of educators of unquestioned ability.

In the recent campaign for the improvement of medical education, a very generous financial support has been provided for medical schools; but it happens that medical schools for negroes have been largely overlooked, although their needs have been proportionally greater than for medical schools generally. Now their income from students' fees has been considerably reduced as a result of the general adoption of higher entrance requirements. As a consequence, medical schools for negroes have not been able to keep pace with improvements in medical education. For about 11 million negroes in the United States, there are only four negro medical schools, one of these being of hopelessly low standing. Generous donations could do much good at the present time if given to medical schools for the colored race.

Problems in the Administration of Entrance Requirements to Medical Schools

PROF. GEORGE GAILEY CHAMBERS, Director of Admissions of the University of Pennsylvania, Philadelphia: A special committee, appointed by the Council on Medical Education, has prepared a schedule of subjects to be included in the college work required for admission to medical schools: chemistry, twelve semester hours; physics, eight semester hours; biology, eight semester hours, and English composition and literature, six semester hours. A reading knowledge of French or German is strongly urged.

There is no question regarding the wisdom of including English and a foreign language among the requirements, because no acceptable college would be organized so that the premedical student could not conveniently take these subjects. The requirement in English should be doubled as soon as the medical schools can do so without unduly decreasing the number of students.

The methods of teaching the sciences should be such as to arouse a desire for scientific investigation and to create an analytic attitude of mind. These are extremely important for the medical student and the practicing physician.

The required subjects constitute a little more than half of the total amount of college work required, and admission officers should consider that any applicant who does not meet those minimum requirements is not entitled to take up the study of medicine.

The plan of allowing conditions in preliminary branches to be removed a year or more after medical work has begun is not justified. The quality of his first year medical work will have been lowered because of the deficiency in his premedical training.

One of the big problems in the administration of entrance requirements is to determine which colleges are organized and equipped to give premedical college work in a satisfactory manner. There is need of some nation-wide agency to determine college standards, to examine the various colleges, and to publish its findings. Then admisson officers and committees could know whether or not the credentials from a particular college should be accepted. The North Central and Southern Associations of Colleges and Secondary Schools have established permanent commissions to pass on the standing of institutions.

DISCUSSION

DR. JOHN M. DODSON, Chicago: Scientific subjects are as truly cultural in their power to develop the mind as are the humanities; but since we need both breadth of information and breadth of culture, humanities should have a large place in our premedical curriculum. The activities of the future physician must be largely in the line of preventive medicine. Recent advances have given us a tremendous power to prevent disease, but relatively little advance in curing disease. Therefore we need, first, education of the community, and second, an expression of educated public opinion in legislative enactments. A cultivated medical man, able to express himself forcefully, is a more effective leader of public opinion in his community than one who intensifies his training along special lines. In other countries, medical men have had a large part in framing legislation; in our country, relatively little. Some medical men in state legislatures and in Congress are men who have dabbled in politics and not men of high standing in the medical profession. For this reason, the medical man of the future needs to be broadly educated. Of late years, our average students have gone backward in their ability to express themselves in good English. A man's ability to express himself in English, either in speaking or in writing, is largely a question of environment. Instead of requiring a certain amount of English, therefore, there should be a specific test as to whether the student can write English properly.

PRESIDENT ROBERT E. VINSON, Austin, Texas: We should enlarge our premedical requirements if possible without lengthening the time, by utilizing summer schools now being carried on in most universities. There should be many studies included that will broaden the student's culture and also enlarge his special training.

PRESIDENT WILLIAM O. THOMPSON, Columbus, Ohio: Culture does not come in youth but in middle life or later. Those managing our grammar and high schools need the support of intelligent professional men to help uphold the best things in education. In the standardization processes there is the danger of insisting on area and quantity rather than quality.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Archives of Ophthalmology, New Rochelle, N. Y.

January, 1918, **47**, No. 1

1 Ocular Changes in Acne Rosacea. Case of Rosacea Ocularis Complicated with Fascicular Keratitis. M. U. Troncoso, New York.—p. 1.
2 Production of Cataract. W. E. Burge, Urbana, Ill.—p. 12.
3 Salvarsan and Other Remedies in Ophthalmic Practice. F. Fergus, Glasgow.—p. 29.
4 Five Years' Experience with Iridotasis. D. Harrower, Worcester, Mass.—p. 37.
5 Late Infection with Enucleation Following an Operation of Iridotasis for Chronic Glaucoma. D. Roy, Atlanta, Ga.—p. 42.
6 Tension in Normal Eyes Before and After Tonsillectomy. A. M. Carr, Chicago.—p. 46.
7 Asteroid Hyalitis. T. B. Holloway, Philadelphia.—p. 50.
8 Leukemic Manifestations in Eye. M. Cohen, New York.—p. 61.
9 Penetrating Injury Limited to Eyeball Followed by Acute Tetanus. R. Sattler, Cincinnati.—p. 64.
10 Case of Unilateral Proptosis; Exploratory Operation. Tentative Diagnosis of Ethmoidal Osteoma. R. Sattler, Cincinnati.—p. 68.
11 Sarcoma of Choroid with Secondary Changes. E. Jackson and W. C. Finnoff, Denver.—p. 72.
12 Tumor of Frontal Lobe of Brain with Ocular Symptom. Necropsy. A. Knapp, New York.—p. 83.

Boston Medical and Surgical Journal

Jan. 24, 1918, **178**, No. 4

13 Research Problems in Tuberculosis. E. R. Baldwin, Saranac Lake, N. Y.—p. 105.
14 Carrel-Dakin Method of Treating Septic Wounds; Its Application to Civil Surgery. G. A. Moore, Brockton.—p. 109.
15 Surgery of Biliary Tract. J. E. Briggs, Boston.—p. 116.
16 Lipoids in One Hundred and Thirty-One Diabetic Bloods. H. Gray, Boston.—p. 120.
17 *Paralysis Agitans and Myopathic Dystrophy Occurring in Uncle and Nephew, with Evidences of Internal Glandular Dyscrasia in Latter. M. Osnato, Boston.—p. 123.

17. **Paralysis Agitans and Myopathic Dystrophy.**—There are two very interesting points in the family history in both of Osnato's cases. In the case of the children of the uncle, it is noteworthy that all of them were very early affected by defective eyesight. The significance of this is not clear. The patient's mother and his brothers and sisters were subject to paroxysmal headaches lasting from three to four days, being periodical in character, occurring once each month. There is a bitemporal pallor in the fundus of this patient to explain the headaches on the grounds of pressure from an enlarged pituitary of pineal gland, most likely pituitary. Whether a suspicion is justifiable in the mother and in the other members of the family suffering from these headaches that either the epiphysis or the hypophysis was responsible for the headaches is a question. The patient continues to have paroxysmal periodical headaches, but the other relatives no longer suffer from them. The roentgenographic examination made in the case of the uncle shows nothing. The eye examination in this patient also discloses nothing. Tests for sugar tolerance in the younger patient have been repeatedly made and show a very high degree of sugar tolerance.

Canadian Medical Association Journal, Toronto

January, 1918, **8**, No. 1

18 Occupation in Treatment of Pulmonary Tuberculosis. J. R. Byers.—p. 1.
19 Diagnosis of Renal Tuberculosis from Department of Urology, Royal Victoria Hospital, Montreal. D. W. MacKenzie, Montreal.—p. 8.
20 Effects of Gassing as Seen at Casualty Clearing Station. G. B. Peat.—p. 17.
21 Modification in Strength of Bordet-Wassermann Test During Treatment of Syphilis. H. K. Detweiler, Toronto.—p. 25.
22 Cases of Empyema Cavities. D. E. Robertson, Toronto.—p. 34.
23 Home Treatment of Tuberculosis. D. H. Bernstein, Montreal.—p. 38.
24 Purpuric Measles. L. M. Lindsay, Montreal.—p. 49.

Colorado Medicine, Denver

November, 1917, **14**, No. 11

25 What Constitutes a Diagnosis of Tuberculosis Sufficient for Rejection for Army? H. Sewall, Denver.—p. 286.
26 Intravenous Medication. M. R. Fox, Sterling.—p. 291.

Indiana State Medical Association, Fort Wayne

January, 1918, **11**, No. 1

27 Activities of the Indiana State Medical Association. J. H. Oliver, Indianapolis.—p. 1.
28 Anesthesia as a Specialty. E. M. Hoover, Elkhart.—p. 4.
29 Causes of Postoperative Nephritis. K. R. Ruddell, Indianapolis.—p. 6.
30 Backache in Women. J. A. Work, Jr., Elkhart.—p. 9.
31 Surgery of Thyroid. W. D. Gatch, Indianapolis.—p. 13.

Iowa State Medical Society Journal, Des Moines

January, 1918, **8**, No. 1

32 Laboratory Diagnosis of Atypical Cases of Communicable Diseases. H. Albert, Iowa City.—p. 1.
33 Diagnosis and Prognosis of More Common Valvular Affections of Heart. W. L. Bierring, Des Moines.—p. 4.
34 What Is Not Rheumatism? W. H. Rendleman, Davenport.—p. 10.
35 Prenatal, Natal and Postnatal Lesions of Cerebrum with Resultant Conditions. E. M. Williams, Sioux City.—p. 16.
36 Tuberculosis of Larynx. R. M. Lapsley, Keokuk.—p. 20.
37 War Work of American Medical Women. E. M. Mosher, New York.—p. 22.

Journal of Infectious Diseases, Chicago

January, 1918, **22**, No. 1

38 *Studies on Blood Proteins. Albumin-Globulin Ratio in Antitoxic Immunity. K. F. Meyer, S. H. Hurwitz and L. Taussig, San Francisco.—p. 1.
39 *Effects of Roentgen Ray on Antibody Production. L. Hektoen, Chicago.—p. 28.
40 Experimental Trypanosomiasis: T. Equiperdum Infection in Dog. E. B. Krumbhaar, Philadelphia.—p. 34.
41 Complement Fixation in Experimental Trypanosomiasis. A. C. Woods and H. H. Morris, Philadelphia.—p. 43.
42 Stability of Erythrocytes of Ox, Pig and Sheep. M. W. Lyon, Jr., Washington, D. C.—p. 49.
43 *Use of Monilia Vaccine in Treatment of Sprue. C. Michel, Porto Rico.—p. 53.
44 *Active Immunity to Systemic Plague Infection. F. Eberson, Harbin, Manchuria.—p. 62.
45 Streptococcus in Acute Epidemic Respiratory Infection of Horses. G. Mathers, Chicago.—p. 74.
46 *Antipollen Serum for Standardization of Pollen Antigen. R. O. Clock, New York.—p. 80.
47 Allergic Phenomena Following Intraportal Injections. F. H. Falls, Chicago.—p. 83.
48 *Microscopic Demonstration of Cocci in Central Nervous System in Epidemic Poliomyelitis. L. Hektoen, G. Mathers and L. Jackson, Chicago.—p. 89.
49 *Inhibitive Effect of Ox-Bile on B. Typhosus. E. E. Ecker, Chicago.—p. 95.

38. **Albumin-Globulin Ratio in Antitoxic Immunity.**—Meyer and his associates found that the percentage of serum globulins increases markedly during the course of immunization with diphtheria, tetanus, and botulism toxin. In the case of botulism toxin, however, there is first an initial rise in the albumin fraction. No constant relationship is demonstrable between the percentage increase in the serum globulin and the antitoxic potency of the serum. The rise in globulins may be one manifestation of an upset in the delicate protein balance of the blood, resulting from the disturbed metabolism following the toxin inoculations.

39. **Roentgen Ray and Antibody Production.**—To test the effect of the ray on antibody-production after it is well under way, that is, a few days after the introduction of the antigen, it proved advisable to use animals that would stand repeated bleedings better than the rat. The purpose now is to present briefly the results of experiments of this and like nature made by Hektoen on the dog and the rabbit. He found that exposure of dogs and rabbits to the roentgen ray at about the same time as antigen is introduced may restrain in high degree, and under some conditions completely, the production of antibodies as measured by the antibody content of the serum. The results correspond fully to those previously obtained from experiments on the white rat. When antibody-production is at or near its height, exposure to the roentgen ray appears to have but little if any effect on the antibodies in the blood, and at this time dogs appear to have an increased resistance to the effects of the ray just as rabbits in the period of active production of antibodies have an increased resistance to effects of benzene. Whether there is any relationship between this apparent resistance to the effects of roentgen rays and the reported beneficial effect of the rays in the later stages of tuberculosis in guinea-pigs remains to

be determined. The results obtained from these observations harmonize with the view that antibodies are produced in the spleen, lymphatic tissues, and marrow, as these structures suffer most directly from the action of the roentgen ray; they indicate also that one reason why the lymphocyte appears to be an important agent of defense in tuberculosis and other conditions may be its power to form antibodies and that the rapid development of tuberculosis in roentgen-rayed guinea-pigs may depend, at least in part, on interference with antibody-production.

43. **Monilia Vaccine in Sprue.**—Of 81 cases reported on by Michel 62 patients have completed the treatment. All cases were diagnosed by Ashford and monilia psilosis was isolated from the feces. In all these cases the complement fixation test was positive. The diet was regulated so as to fit each individual case. The only medication given was to stimulate digestion. Sprue being confused with other diseases and being often complicated, a careful positive diagnosis was made in each case. Cases of sprue without complications responded most readily to the treatment. Americans responded very quickly to the treatment and required a shorter time than Porto Ricans. Of 62 patients treated, 49 patients were discharged cured, 12 were improved, and 1 died. The results of the vaccine treatment are very encouraging, and all patients under treatment have shown great improvement. In noting the results of the treatment, the mental attitude of the patients has been considered to ascertain whether the injections and reactions produced a psychic improvement only. In certain cases there was a distinct abatement of sprue symptoms after the third injection and instead of a diarrhea, constipation resulted. The most notable feature was the gain in weight, which was progressive from week to week. There was, in all cases, a great improvement in the general physical condition of the patient, and the disappearance of the monilia from the feces. The results of this treatment are very favorable, and it is believed that monilia psilosis vaccine should be tried in other localities where sprue is present.

44. **Active Immunity to Systemic Plague Infection.**—Eberson claims that the treatment of rabbits with proteotoxins obtained with *B. pestis* confers a definite resistance on the part of the animal to systemically introduced plague organisms. There is apparent protection in at least 75 per cent. of the animals treated, taking the entire number of cases into consideration. Below a certain dose of bacteria, the protection conferred is much greater. Combined intravenous and intraperitoneal injections of the proteotoxin seem to be more effective than either method by itself, although intraperitoneal treatment of rabbits results in a powerful resistance to plague bacteria administered by that route. The immunity, so far as it has been possible to determine in these experiments, is definitely marked for at least one month after treatment. Injections given at intervals of two to three weeks give rise to a definite resistance to inoculation with living virulent plague bacilli. *B. pestis* appears to be the matrix for a specific poisonous substance of the nature of proteotoxin, and capable of inducing a specific resistance to the organism which is used in the manufacture of the toxic element. Observations so far support the hypothesis that one of the most potent factors in the protective mechanism is that of leukocytosis.

46. **Antipollen Serum for Standardization of Antigen.**—Potent antipollen serum was prepared by Clock by immunizing rabbits intravenously or intraperitoneally with an extract of whole pollen. Eleven injections of an increasing number of units of pollen, ranging from 5,000 to 50,000, produced immune serum of sufficiently high titer for use as positive serum in standardizing pollen antigen. Antipollen serum preserved in 50 per cent. glycerol retained its potency and did not become anticomplementary after two years. Antipollen serum, used for standardizing pollen antigen by the complement fixation method, afforded a reliable guide for determining and measuring the active antigenic power of pollen extract.

48. **Cocci in Nervous System in Poliomyelitis.**—The cord and other parts of the central nervous system in about fifty cases of epidemic poliomyelitis, occurring in different parts of the country, were examined by Hektoen and his associates and found to contain in stained sections, cocci which look quite like the cocci that may be grown in cultures from the brain and cord in poliomyelitis. This result indicates that such cocci occur constantly in the central nervous system in epidemic poliomyelitis, and that their presence here is not explainable as due to accident or contamination.

49. **Inhibitive Effect of Ox-Bile on B. Typhosus.**—The observations recorded by Ecker show that a great number of the viable cells of *B. typhosus* are affected through the use of bile media, and further multiplication prevented. Bile has a distinct inhibitive effect on the growth of typhoid bacilli. This inhibition can be reduced to a certain extent by the addition of glycerol. There is no marked difference between the inhibitory power of bile sterilized by heat and that of bile sterilized by filtration through a Nordmeyer bougie. Bile salts distinctly retard the growth of typhoid bacilli.

Journal of Parasitology, Urbana, Ill.

December, 1917, **4**, No. 2

50 Homologies of Excretory System of Forked-Tailed Cercariae. W. W. Cort, San Francisco.—p. 49.
51 Morphology and Life History of New Trematode Parasite, Lissorchis Fairporti Nov. Gen., et. Nov. Spec. from Buffalo Fish, Ictiobus. T. B. Magath, Chicago.—p. 58.
52 Insect Transmission of Infectious Anemia of Horses. C. W. Howard.—p. 70.
53 Intestinal Worms of Dogs in Philippine Islands. L. D. Wharton, Philippines.—p. 80.
54 Intracellular Development of Gregarine Frenzelina Ampelisca n. sp. N. Nowlin and I. Smith, Topeka, Kan.—p. 83.
55 Animal Parasites of Rats at Madison, Wisconsin. A. M. Moll, Madison, Wis.—p. 91.

Medical Record, New York

Jan. 26, 1918, **93**, No. 4

56 *Streptococcus Oral Sepsis: Complement Fixation Test and Value of Routine Blood Examination. N. B. Potter, A. McNeil and S. Bradbury, New York.—p. 135.
57 Radioactivity in Therapeutics. J. B. Bissell, New York.—p. 12.
58 Diagnosis and Treatment of Obscure Cases of Tuberculosis. O. Paget, Fremantle, West Australia.—p. 144.
59 Gallbladder Disease and Its Surgical Treatment. M. Behrend, Philadelphia.—p. 147.
60 Internal Secretions and Pediatrics. A. Hymanson, New York. p. 150.

56. **Streptococcus Oral Sepsis.**—The authors detail their experiences with a complement fixation test in a series of cases of streptococcus mouth infections. Even with an imperfect antigen the results of a complement fixation test for streptococci in the oral sepsis complicating or causing many forms of chronic invalidism, supports in general the clinical evidence of the etiologic, prophylactic, and therapeutic importance of this organism, and emphasizes the desirability of further attempts along this line to assist diagnosis. In twenty-five cases of pronounced oral sepsis the only suggestive feature exhibited by a routine examination of the blood is a high normal lymphocyte percentage, which, however, is certainly no more striking than in any collection of patients who consult a physician for some minor ailment.

Military Surgeon, Washington, D. C.

January, 1918, **42**, No. 1

61 *Transportation of Wounded. J. Gilmour.—p. 1.
62 Army Venereal Problem. G. R. Callender.—p. 13.
63 Id. R. G. Ebert.—p. 19.
64 Medicomilitary Notes. R. W. Hinds.—p. 25. To be continued.
65 Ophthalmology as Specialty Ashore and Afloat. G. B. Trible.—p. 37.
66 Local Anesthesia. C. R. Reynolds.—p. 45.
67 *Flatfoot. G. H. R. Gosman and H. P. Perry.—p. 56.
68 *Auscultation of Pulmonary Apices in Young Men. J. T. King, Jr.—p. 60.

61. **Transportation of Wounded.**—Gilmour describes the method of transportation of wounded used by the Royal Army Medical Corps. The assistant director of medical services makes his arrangements to get the wounded of his division from the firing line to the field ambulance. The deputy director of medical services of the corps removes the wounded from the field ambulances to the casualty clearing station. The director of medical services at the army headquarters arranges for hospital trains to clear the casualty

clearing stations to the general hospitals at the base. The assistant director of medical services of the division must work closely with the other divisional staff officers. He must obtain sufficient personnel to act as stretcher-bearers. He must know which are "up" trenches and which are "down." Trenches cannot be blocked by wounded being carried down when troops and ammunition are being taken up. He must know the routes of the french tramways and Decauville railways so as to utilize these important methods of transport and so avoid long carries by men. He must arrange for the use of the empty returning trucks, so he must know when ammunition, etc., is being sent up. In the event of an advance, these light railways and trench tramways are pushed on behind the troops; he must therefore know where they are going and arrange his collecting posts at the most suitable sites. If it is possible to use roads, he must know which roads are suitable for motor transport and which for horse-drawn transport. All routes must have proper directing posts or flags at crossings so that the unaccompanied, walking, wounded men may know which way to go. All medical posts must be distinctively marked.

The deputy director of medical services at the corps headquarters arranges for the transportation of wounded from the main dressing station to the casualty clearing station, and also assists by sending extra transport to clear the wounded from the advanced dressing stations to the main dressing station if any strain or congestion is occurring at any point. He also arranges for the evacuation of the lightly wounded from the "walking wounded post" to the casualty clearing station. The site for a "walking wounded post" should be, if possible, close to a main road so that the empty returning transport may be made use of. Empty returning ammunition trucks are usually available after the first few hours. The route to be taken by the motor ambulance cars between the advanced dressing station and the main dressing station and between the main dressing station and the casualty clearing station must be worked out in conjunction with the assistant provost marshal at the corps headquarters. Ambulance cars should never be allowed to run in convoys; single cars are much easier to handle by traffic officers. They can be passed through a body of marching troops without halting the whole column, and they are much speedier when running alone. The evacuation from the casualty clearing station to the base by means of hospital trains is arranged by the director of medical services with the director of railway transport at the army headquarters.

When a man is hit in the trenches the stretcher-bearers go to his assistance. The first field dressing is applied and the man is accompanied or carried to the headquarters of the medical officer in the battalion aid post. This is a dugout in the second or third line of trenches. From there he is taken by the battalion stretcher-bearers to the advanced dressing station, or, if the distance is great, to a collecting post. This part of the journey is made by hand carriage or trench tramways by the battalion stretcher-bearers. From the advanced dressing station or the collecting post the field ambulance takes charge of the wounded man. If his condition is not serious he may be detained till night, when it is possible for motor ambulances to come up and evacuate the wounded. If the condition of the wounded man is so serious that he cannot be detained, he is taken by wheeled stretcher to the nearest point to which an ambulance car can advance without attracting the attention of the enemy and from there to the main dressing station of the field ambulance. This stage of the evacuation is performed by the ambulance cars of the field ambulance. From the main dressing station to the casualty clearing station, the cars of the motor ambulance convoy do the transportation. This evacuation is arranged at fixed hours once or twice a day. The officer in charge of the field ambulance notifies the commander of the motor ambulance convoy how many patients he has requiring transportation, whether they are officers or of other ranks, and how many lying and sitting. The motor ambulance convoy removes infectious cases once a day from the field ambulance to the special infectious hospital. The methods of transport in use on the western front may be classified as follows: (1) by men, (2) by conveyances carried by men, (3) by conveyances wheeled or drawn by men, (4) by conveyances carried by animals, (5) by conveyances drawn by animals, (6) by mechanical transport, (7) by railway transport, (8) by water transport.

67. **Studies in Flatfoot.**—The following conclusions have been reached by Gosman and Perry as the result of the work at Fort Ethan Allen, in the observation and treatment of flatfoot. 1. Subjectively symptomless flatfoot, in civil life, quickly becomes a source of trouble and invariably gives acute symptoms under the burden of intensive military training. 2. Any given case objectively showing a flat arch, even though of the first degree, should be rejected for enlistment, unless all motions of the toes and ankles are free to the extreme degree. 3. The system of recording the degree of flatfoot inaugurated at this post indicates, by comparison, the degree of improvement in motility under muscular exercise properly conducted. 4. The method employed at Fort Ethan Allen since Aug. 1, 1917, in the treatment of flatfoot is the plan best adapted to the needs of men in the army undergoing intensive military training. 5. The nonresistant exercise plan is most effective and shows results well calculated to make its adoption in military practice advisable.

68. **Auscultation of Pulmonary Apices.**—In an examination of over 20,000 men for tuberculosis, King kept notes of adventitious sounds in the upper lobes in the examination of 810 men. In thirty-three cases (4 per cent.), crepitations were heard at or near one or more joints. Most of such sounds emanated from the scapulae, the costosternal and sternoclavicular articulations, and from the joints at the shoulder anteriorly. In twenty-three instances, certain crackles, usually rather loud and explosive, were heard for one or a few respirations at the apices, disappearing promptly during continued breathing. In seventeen cases (2.07 per cent.) there were found the persistent apical clicks or crackles, of the type which had often proved confusing.

Minnesota Medicine, St. Paul

January, 1918, **1**, No. 1

69 Orthopedic Treatment of Deformities Resulting from Incurable Paralysis. A. J. Gillette and C. C. Chatterton, St. Paul.—p. 1.
70 *Harelip and Cleft Palate. G. B. New, Rochester.—p. 8.
71 Some Popular Fallacies Regarding Pediatrics. W. R. Ramsey, Minneapolis.—p. 16.
72 The Tonsil Question. N. H. Gillespie, Duluth.—p. 20.
73 Tonsils Cause of, and Tonsillectomy Cure for Rheumatism. J. H. James, Mankato.—p. 23.

70. **Harelip and Cleft Palate.**—New says that in the Mayo Clinic they prefer to close the lip first when the child is between 3 and 4 mounths old, if he is gaining weight and doing well. From three or four days to a week before the operation the child should be fed with a spoon or dropper to accustom it to this method of feeding, since of course, after the operation, it is not allowed to nurse from the bottle or the breast. When there is a cleft of the alveolar process, as in the complete single harelip, the lip is brought together over it, but no attempt is made to approximate the alveolar process. The same procedure is used in the treatment of the premaxilla. In a case of double harelip the lip is brought together over the premaxilla and its normal rounded appearance is maintained. If the alveolar process is forced back in the single harelip or if the premaxilla is removed in the double harelip or a wedge-shaped piece is taken out of the vomer and the premaxilla forced back, the lip will be flattened and it will be almost impossible to correct the deformity. When united, the lip gradually presses back the alveolar process or premaxilla into its normal position, giving the normal rounded contour to the face and the correct alinement to the teeth. The time for closing the palate is when the child is from a year to a year and a half old, before it has begun to talk. The edge-to-edge approximation or the Langenbeck operation is the operation of choice for the closure of cleft palate.

Nebraska State Medical Journal, Norfolk

January, 1918, **3**, No. 1

74 Military Surgery. J. E. Summers, Omaha.—p. 1.
75 First Aid to Injured. J. C. Tucker, Long Pine.—p. 5.

76 Case of Double Ureterostomy for Inoperable Obstruction of Ureters. C. A. Roeder, Omaha.—p. 7.
77 Acute Gonorrheal Urethritis. H. R. Brown, Beatrice.—p. 10.
78 Tonsil in General Diseases and Its Treatment by General Practitioner. R. T. Jones, Edgar.—p. 12.
79 Internal Secretions. A. E. Guenther, Omaha.—p. 15.
80 Acidosis. M. J. Breuer, Lincoln.—p. 19.
81 Anesthesia and Analgesia in Labor. A. L. Smith, Lincoln.—p. 23.

New York Medical Journal

Jan. 26, 1918, **107**, No. 4

82 Complete Clinical Chart. S. S. Cohen, Philadelphia.—p. 145.
83 Treatment of Acute and Chronic Arthritis with Radioactive Wave Energy. E. Zueblin, Cincinnati.—p. 147.
84 Henry VIII, A Most Liberal Patron of Medicine. H. D. King, New Orleans.—p. 151.
85 Otosclerosis. M. W. Fredrick, San Francisco.—p. 153.
86 Ether Therapy in Surgical Infections and Its Effect on Immunity. J. Saliba, Elizabeth City, N. C.—p. 157.
87 How to Avoid Tuberculosis. O. R. Eichel, Albany.—p. 161.
88 Heartphone. C. C. Henry, New York.—p. 162.

New York State Journal of Medicine

January, 1918, **18**, No. 1

89 Mechanism of Intestinal Atony in Children; Etiology and Treatment. F. B. Turck, New York.—p. 1.
90 Practical Infant Feeding. J. R. Johnson, Syracuse.—p. 6.
91 *Lactic Acid Cultures in Treatment of Difficult Feeding Cases. F. Vander Bogert, Schenectady.—p. 13.
92 Noma. E. E. Hinman, Albany.—p. 15.
93 *Treatment of Whooping Cough. H. L. K. Shaw, Albany.—p. 18.
94 *Indicanuria in Children. W. J. Schuyler, Utica.—p. 22.
95 Laryngotomy in Children. J. F. McCaw, Watertown.—p. 26.
96 Surgery of Splenic Anemia. G. W. Cottis, Jamestown.—p. 28.
97 Operative Obstetrics. I. W. Potter, Buffalo.—p. 32.

91. **Lactic Acid Cultures in Infant Feeding.**—Colicky babies and infants, as well as older children, with severe chronic digestive disturbances, whose stools show distinct gas production on culture are in Bogert's experience almost invariably benefited by cultures of lactic acid bacilli, in frequent and full dosage. In the milder infections, diet alone, lowering of the sugar and fat percentage of the food will suffice. The improvement, however, is apparently far slower. Bogert has used liquid cultures. They must be kept cold, otherwise they very probably will destroy themselves by overproduction. Buttermilk was not used because of difficulty of procuring.

93. **Treatment of Whooping Cough.**—A study of the use of vaccines in 112 cases of whooping cough, in which this was the only treatment employed, shows that in 36 per cent. of the cases in which the vaccines were given after the whoop developed, the course of the disease was shorter than the usual duration of the whooping stage; that is, thirty days, but with no effect on the number and severity of the paroxysms; in 52 per cent. there were fewer paroxysms and of lessened severity, especially at night; in 12 per cent. of cases there was no improvement observed, either in the course of the disease, its severity or the number of paroxysms.

94. **Indicanuria in Children.**—Several cases are cited by Schuyler. The first is that of a child about 4 years of age who had been the victim for a year or more of prolonged attacks of vomiting accompanied by marked prostration. Investigation showed the presence of indican in the urine in large amount. In addition to this the oxalates in the form of oxalate of lime crystals were found in excess. There was no trace of albumin or sugar. Another child about 6 years of age had had repeated attacks of bronchial asthma. The urine was loaded with indican. Still another child, aged about 2 years suffered with severe attacks of bronchial asthma, and much the same underlying conditions were found, except that in this instance, biurate of soda was crystalized out of the specimen in large amount. In each case complete relief followed the correction of the intestinal putrefactive tendency.

Northwest Medicine, Seattle

January, 1918, **17**, No. 1

98 *Cerebral and Cardiac Types of Arteriosclerosis. T. H. Coffen, Portland, Ore.—p. 1.
99 Problem of Social Diseases in Modern Army. A. H. Peacock, Seattle.—p. 7.
100 Rural Sanitation in Relation to National Affairs in Time of War. T. D. Tuttle, Seattle.—p. 9.
101 War Surgery Abroad and at Home. R. W. Corwin, Pueblo, Colo. —p. 12.
102 Outlook for Surgery. H. N. Mayo, Salt Lake City.—p. 14.
103 Surgical Goiter. J. E. Else, Portland, Ore.—p. 16.
104 Operative Treatment of Goiter. W. I. Terry, San Francisco. —p. 20.
105 Quinin and Urea Injections in Goiter. L. F. Watson, Chicago. —p. 23.
106 Pancreatic Cyst. Removal of Three-Fourths of Pancreas. Recovery. J. T. Mason, Seattle.—p. 24.

98. **Types of Arteriosclerosis.**—Out of seventy-one cases analyzed by Coffen, blood pressure readings and clinical observations having been made in the last three or four years, fifty-two, or 70 per cent., fall according to the "heart-load" in the cardiac group. Fourteen are referred to particularly; five of these have died—three from cardionephritic symptoms, all finally in coma (uremia). One died suddenly with angina pectoris and one in diabetic coma. The majority of the cardiac patients showed on repeated examinations the urinary and clinical findings of chronic interstitial nephritis with increased output, traces of albumin, few hyalin and granular casts. One patient of the cardiac group had been unconscious for two weeks when first seen, in apparent uremia, but recovered on active cardiac stimulation, falling apparently in the cerebral edema type. In the cases falling into the cerebral group (nineteen) there were definite clinical evidences of cerebral hemorrhage in most but there were some anomalies, for repeated blood pressure readings showed in some a high heart-load at times, and some signs of cardiac strain. A considerable number of cases, according to the formula, fell into one or the other group, but so far show no outspoken cardiac or cerebral symptoms. These may, later show the prognostic value of estimating the heart-load. Coffen's study shows that the majority of hypertension cases in arteriosclerosis show sooner or later cardiac strain. The estimation of the heart-load seems of value as evidence of increased work demanded of the heart, and to a certain degree of how much work. The kidney's share in arteriosclerosis seems more evident in the terminal stages. Of the patients with arteriosclerosis seen in the past four years, the kidneys function well, as a rule, while the patient is ambulatory.

Pennsylvania Medical Journal, Athens

January, 1918, **21**, No. 4

107 Arthritis: General Considerations and Classifications. L. Litchfield, Pittsburgh.—p. 217.
108 Metabolism and Treatment of Rheumatoid Arthritis. R. Pemberton, Philadelphia.—p. 220.
109 Diagnosis of Focal Infection. J. Daland, Philadelphia.—p. 224.
110 Development of Nephritis. O. Klotz, Pittsburgh.—p. 229.
111 Tests for Measurement of Renal Efficiency in Relation to Prognosis in Nephritis. H. A. Christian, Boston.—p. 233.
112 Classification and Treatment of Nephritides. M. H. Fischer, Cincinnati.—p. 236.
113 Composition of Sweat in Nephritis. J. Sailer, Philadelphia.—p. 245.
114 Social and General Management of Cases of Nephritis as Seen in Medical Dispensary. T. C. Kelly, Philadelphia.—p. 248.
115 Diseases of Eye from Focal Infections. A. Krebs, Pittsburgh.—p. 251.

Public Health Journal, Toronto

January, 1918, **9**, No. 1

116 Housing Problem in England with some Lessons for Canada. F. A. Dallyn, Ontario, Canada.—p. 1.
117 Pasteurization of Milk Supply. J. A. Boudouin, Lachine, Quebec. —p. 11.
118 Control of Venereal Disease. E. H. Marsh, Brooklyn.—p. 27.
119 Provincial Board of Health of Ontario. J. W. S. McCullough, Toronto.—p. 35.

Southwestern Medicine, El Paso, Texas

January, 1918, **2**, No. 1

120 Complement Fixation Reaction in Tuberculosis. C. N. Boynton, Phoenix, Ariz.—p. 9.
121 Treatment of Syphilis. J. H. Morford, El Paso.—p. 15.
122 *Method of Obtaining Skin Flaps in Repair of Mutilating Injuries of Hands or Feet. C. S. Vivian, Humboldt, Ariz.—p. 21.
123 Open Treatment of Fractures. W. L. and C. P. Brown, El Paso. —p. 23.
124 Diseases of Glans and Prepuce. W. R. Jamieson, El Paso.—p. 25.
125 Abdominal Cesarean Section with Local Anesthesia. T. B. Smith, Morenci, Ariz.—p. 32.

122. **Method of Obtaining Skin Flaps in Repair of Injuries on Hands and Feet.**—In cases in which it is necessary to

amputate a finger, for instance, Vivian makes use of the skin covering this finger to cover the denuded area of the injured hand or wrist. The bone being removed, the flap is spread out and sutured to the margin of the area which is to be covered. In Vivian's experience the skin is apt to slough for an area of about one eighth of an inch around its periphery, consequently, it is well to refrain from tight suture. Any lacerated or infected areas of the skin of the finger to be utilized should also be excised and may be sutured together in whichever direction it seems advisable. This procedure has been most successfully applied in an injury produced by explosive force at the wrist; in another in which the metacarpal bones were caught between the gears of a pump; and a third in which a percussion cap exploded in the palm of the workman's hand, tearing out the second and third metacarpals together with their articulations to the phlanges.

Tennessee State Medical Association Journal, Nashville

January, 1918, **10**, No. 9

126 Endometrium and Endometritis. H. M. Tigert, Nashville.—p. 345.
127 Some Facts About Tuberculosis. C. A. Robertson, Ridgetop.—p. 350.
128 Buccal Route for Operative Procedures on Anterior Part of Floor of Nose. W. L. Simpson, Memphis.—p. 355.
129 Inguinal Hernia. H. L. Fancher, Chattanooga.—p. 357.
130 Orthodontia as Science. O. A. Oliver, Nashville.—p. 360.

Vermont Medicine, Rutland

December, 1917, **2**, No. 12

131 Physical Examination of Drafted Men. J. M. Hamilton, Rutland.—p. 285.

Washington Medical Annals

January, 1918, **17**, No. 1

132 Centennial Anniversary Number.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Jan. 5, 1918, **1**, No. 2975

1 *Some Surgical Developments in Wound Treatment During War. A. W. M. Robson.—p. 1.
2 Treatment of Gonococcal Arthritis by Sensitized Gonococcal Vaccine. H. D. Haworth.—p. 4.
3 Muscle Nerve Testing During Operation. W. R. Bristow.—p. 6.
4 *Eye Changes in Trench Nephritis. J. Kirk.—p. 7.
5 Sycosis and Other Chronic Staphylococcal Infections of Skin, and Their Prevention. H. G. Adamson.—p. 8.
6 Treatment of Psoriasis by Roentgen Rays and Chlorin Ionization. C. E. de Silva.—p. 9.
7 *Acidosis as Possible Cause of Certain Symptoms in Diphtheria. B. A. Peters.—p. 10.
8 Simple Method of Mechanical Fixation for Fracture of Long Bones. J. E. Adams.—p. 12.
9 Anatomic and Physiologic Principles Underlying Treatment of Injuries to Muscles, Bones and Joints. A. Keith.—p. 14.

1. **Surgical Developments in Wound Treatment.**—Robson says that in cases seen at the front the first duty of the surgeon in all shell wounds is to lay the wound fully open, including every pocket, to remove all foreign bodies and bits of clothing as well as loose particles of bone and dead or damaged tissue, to arrest bleeding, and to irrigate the wound thoroughly with some antiseptic such as eusol or neutral solution of sodium hypochlorite, or hypertonic saline or alcohol—in fact, to treat the patient on the general principles well known as suitable for poisoned wounds; this, followed by free drainage, was the method carried out with more or less success in the early months or first year of the war. Although this led to saving of life and to abolishing violent sepsis and gas gangrene, it left large wounds to heal by a long process of granulation, and led to exhaustion of vital powers, and to deformity caused by large scars. Now, however, there are several methods to choose from to shorten the treatment subsequent to the first necessary operation. The Carrel-Dakin treatment, with closure of the wound in from a week to a fortnight, if the patient can be taken to a good hospital, and kept there, is the ideal method, and has certainly given excellent results, but it is not good for patients that have to be transferred by sea and rail.

If the patient has to be transferred—as, indeed, have the greater number of patients—after cleansing the wound and drying it with alcohol, the bipp treatment with closure of the wound affords an excellent method; this is especially the case if the wound has been completely excised, when either bipp or the paste recommended by Hey can be used. The salt pack treatment used by Gray is excellent both for transport and subsequent treatment, to be followed in about a week or more by the Carrel-Dakin or bipp methods. For the care of patients with septic suppurating wounds arriving constantly at the base hospitals both in France and in England, the pathologic method followed out at Reading of grafting the purified wound with the Reading bacillus under packs of sphagnum moss is both simple and effective, and the experience there is that secondary hemorrhage has never occurred under this treatment.

4. **Eye Changes in Trench Nephritis.**—Seventy or eighty patients came in the same convoy from the Macedonian front. They were chiefly active cases of trench nephritis in soldiers between 20 and 30 years of age, and were examined by Kirk with reference to eye complications. Nearly all the cases presented the disease in a severely acute form, and almost invariably marked retinal congestion, with large pulsating veins were present. There were no signs then, however, of any patches of exudation or nerve involvement. Some weeks later, however, more definite changes of nerve swelling, accompanied by patches of retinal exudation were seen. While the spots of exudation were generally in the usual situations, that is, near the disk and in the macular area, in no case was seen the typical silvery starlike figure of the chronic cases as figured in the textbooks. Hemorrhage was not common. Those seen were of the small punctate variety, and not of the striate or flamelike character. The optic disk was often affected, the changes varying from a definite swelling to slight woolliness and indistinct edges. Small areas of edema were noticed, especially along the course of the veins. An important point was that in several of the series Kirk was able to trace the gradual absorption of some of the smaller patches of exudation.

Kirk believes that the pathology of this condition is probably an acute congestion resulting from some specific toxin, that the exudation which ensues is partly lymphoid and partly cellular in nature, and that this deposit probably clears up in the great majority of cases, without leaving any permanent results. The condition is one which is probably allied to the acute retinitis of pregnancy, scarlatina, and acute uremia, and should not be confounded with the retinitis of chronic kidney inflammation with its permanent changes in the retinal circulation vessels and tissues.

7. **Acidosis in Diphtheria.**—Peters' observation has lead him to believe that in certain cases of diphtheria, acidosis is a serious complication. Some of the symptoms in vomiting cases of diphtheria may be due to a previous acidosis causing suprarenal exhaustion. These symptoms are not prevented by antitoxin if the patient does not receive it by the third or fourth day of the disease. The administration of large amounts of alkali to patients showing these symptoms diminishes or stops vomiting but does not usually save the patient. The administration of 10 to 15 gm. of sodium bicarbonate daily for several days from the earliest possible moment, with full doses of antitoxin, appears to prevent the onset of these symptoms.

Dublin Journal of Medical Science

December, 1917, **144**, No. 552

10 Prognosis. H. C. Drury.—p. 345.
11 Eugenics Limited to Care of Pregnant Women, Advocating Expectant Mother Hospitals and Special Dispensaries. A. Smith.—p. 351.

Journal of Tropical Medicine and Hygiene, London

Jan. 1, 1918, **21**, No. 1

12 History of Introduction of Antimony in Therapeutics of Internal Leishmaniasis. R. Jemma.—p. 1.

Lancet, London

Jan. 5, 1918, **1**, No. 4923

13 *Antiscorbutic Value of Milk in Infant Feeding. H. Chick, E. M. Hume and R. F. Skelton.—p. 1.

14 Roentgen-Ray Localization. E. W. H. Shenton.—p. 2.
15 *Treatment of Fractures in Warfare. W. A. Lane.—p. 4.
16 Treatment of Wounds Involving Mucous Membrane of Mouth and Nose. P. P. Cole.—p. 11.
17 Entameba Histolytica Infections. W. MacAdam.—p. 15.
18 Wassermann Reaction. F. E. Taylor.—p. 19.
19 Value of Roentgenogram in Surgery of Facial Injuries. H. M. Johnston.—p. 10.

Jan. 12, No. 4924

20 *Antenatal Syphilis: Suggested Action of Chorionic Ferments. A. J. Routh.—p. 45.
21 Heart Failure and Pregnancy. J. Mackenzie.—p. 50.
22 Some Points in Diagnosis and Treatment of Dysentery Occurring in British Salonika Force. D. Graham.—p. 51.
23 *Wounds of Chest as Seen at Advanced Operating Center. W. A. Rees and G. S. Hughes.—p. 55.

13. **Antiscorbutic Value of Milk in Infant Feeding.**—Although raw cow's milk contains the accessory food factor (vitamin) which protects from scurvy, this is present in small amounts and is further diminished by heating or drying. Therefore, the authors suggest that infants fed on heated or dried milk, or on any milk substitute, should receive also some antiscorbutic ration, such as fresh fruit juice or potato. It is probable that the raw juices of turnips and swedes can also be employed.

15. **Treatment of Fractures in Warfare.**—In Lane's experience during the war no patients have been as badly treated as those having simple fractures. In the large majority of instances the unsatisfactory nature of the result has been due apparently either to a want of familiarity with the mechanics of fractures or to such an imperfect operative technic as suggested but little knowledge of the very important details which a surgeon should employ in operating on fractured bones. Large numbers of simple fractures have been put up in plaster of Paris, or in wooden or metal splints, without any apparent regard to the character of the displacement, and the fragments have been allowed to unite in such positions as either rendered the limb useless or have materially affected its usefulness. As regards the operative procedures in fractures, it is unfortunate that many surgeons appear to imagine that the very moderate amount of cleanliness which enables them to perform abdominal or other operations with success is sufficient for the methods required to expose a simple fracture, to place the fragments in accurate apposition, and to retain them by means of steel plates and screws.

Apart from infection of the wound, the surgeon failed frequently to obtain a successful result for the reason that he was unaware of the very simple means by which, in cases of fractures by direct or indirect violence, the broken surfaces can be brought into accurate apposition. Not succeeding in doing this, he had occasionally endeavored to establish apposition of fragments and axial continuity of the shaft by cutting away portions of the bone. As to the operative treatment of fractures produced by projectiles, Lane says, that only in very exceptional circumstances is it advisable to fix fragments of broken bones together by means of plates and screws while the wound is very foul. Should the surgeon have to resort to their use he must be most careful to see that perfect drainage is established. It is advisable to postpone operative interference till the wounds have healed for some considerable time, and until the tissues are, in all probability, free of organisms. If any apparently septic focus is observed during an operation, a culture and a vaccine should be obtained from it and employed at once should symptoms of infection of the wound develop. If there is any definite suspicion of the presence of latent sepsis, Lane advises irrigation by Carrel's method; if not, the wound should be closed completely at the time of operation. On no consideration whatever should any bone be removed. Accurate apposition can always be obtained if the surgeon knows how to bring it about. This is effected by manipulation with suitable instruments.

Much heavier steel plates are required in the class of malunited fractures produced by projectiles than are usually employed in the less comminuted fractures of civil life. Joints in relation with the fractured bone should be moved as soon as possible after the operation in order to avoid stiffness and limitation of movements, providing no strain shall be exerted on the junction likely to develop nonunion, the sooner the patient who has been operated on for fracture of one or more long bones of the leg is up and about, the more bone will be deposited and the more rapid will be the repair at the seat of fracture. Lane emphasizes the fact that while the operative treatment of compound fractures produced by projectiles is the most important of all surgical procedures in warfare, it is well to remember that it demands a degree of asepsis, mechanical skill, resource and judgment in excess of that required for other operations for war conditions. Besides sepsis, usually introduced from without, hemorrhage is the chief risk which is associated with these operations. This can be best avoided by the use of very powerful hemostatic forceps, which are left in position in the wound for as long as possible during the course of the operation. A ligature is rarely required.

20. **Antenatal Syphilis and Chorionic Ferments.**—Congenital syphilis is a more serious infection than primary syphilis, and the treatment of congenital syphilitics is less satisfactory than in those infected primarily. Routh believes that not only is paternal infection of the ovum by the seminal fluid possible, but that it is not infrequent, and that the mother may become (1) directly infected either before or with fertilization if she has a genital abrasion or an erosion of the cervix; or (2) indirectly infected during the pregnancy via the embryo (conceptional syphilis); or (3) there seems evidence to show that in a few cases she may be infected by the spirochetes in a granule stage, and that these may develop into the mature organism after pregnancy. More usually, however, the embryo is infected by the already infected mother, either by the infection of the ovum while in the Graafian follicle as part of the generalization of the disease, or after fertilization when burrowing in the uterine mucosa, or by transplacental infection. Some very early abortions may be the result of paternal infection of the ovum, and the woman may have escaped infection owing to the expulsion of the ovum very soon after its fertilization and infection, before there is any true fetal circulation. The percentage of intra-uterine deaths from syphilis is variously estimated, but syphilis is the commonest cause of abortions and stillbirths. Routh's opinion is that in city populations about 25 per cent. of stillbirths and abortions are due to syphilis. In rural districts the proportion is probably much less.

Routh points out that the "granules" mentioned above are infecting agents, being, in fact, spirochetes in the granule stage. They are able to develop into the mature spirochete in a suitable environment, or may become biologically inactive and remain latent for short or long periods. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces around it. As a result of the destructive action of the ferments on the maternal tissues so-called syncytiotoxins are formed, but appear to be at once neutralized by so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may become present. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties on the *Spirochaeta pallida*, which may either be in the maternal intervillous or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise. This destructive action of the chorionic ferments on the spirochete breaks it up into granules. Routh further suggests that during pregnancy it is the continued action of the chorionic ferments on the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochetes.

23. **Wounds of the Chest at Advanced Operating Center.**—According to Rees and Hughes primary hemorrhage is the chief cause of death during the first few hours after the

receipt of a wound of the chest. When severe, the patients are brought in blanched, restless, and with a rapid pulse. Restlessness is the most marked feature of the case. The treatment for these bad cases is mainly expectant, keeping the patient as quiet as possible and easing pain by the use of morphin or heroin. They require very careful handling, rolling them over on to their sound side to dress the wound being sometimes sufficient to cause death. The blood usually comes from the deeper blood vessels in the lung, and Nature's method of arresting it is to cause collapse of the lung. The authors have not seen a single case in which severe hemorrhage came from an intercostal artery, and therefore plugging of the wound is of no real benefit, and moreover, it prevents the entrance of air into the pleural cavity, which is the most rapid way of causing collapse of the lung. Hemoptysis was present in 65 cases out of 100 undoubted penetrations of the chest in which its presence or absence was noted. In the authors' series there were 44 cases of leaking pneumohemothorax and 72 cases of hemothorax or closed pneumohemothorax. The mortality in the leaking pneumohemothorax cases was 61 per cent.

Three methods of dealing with leaking cases are mentioned: (*a*) Simple dressing. The wound is swabbed over with an alcoholic solution of picric acid or iodin and dry gauze applied. (*b*) Plugging the wound, to arrest hemorrhage and also to hinder the entrance of germ-laden air. In most cases, the authors do not advocate this method of treatment. (*c*) Sewing up the wound, with or without the removal of the foreign body. The removal of the foreign body from the lung is only justifiable in a few selected cases, but the sewing up of the wound is advisable in all cases of leaking chest wounds, since it is by this means one can prevent the pleural cavity from becoming infected in more than half the cases. The treatment of the cases of closed pneumohemothorax differs in no way from that of an ordinary hemothorax. The authors had 72 cases of hemothorax and closed pneumohemothorax with 14 deaths, a mortality of 19.3 per cent. Of the fatal cases, 5 patients died from primary internal hemorrhage. Of the 67 patients that survived forty-eight hours, 8 became infected (11.9 per cent.) and 5 died from this cause, a mortality rate of 7 per cent. Bronchopneumonia caused the fatal result in one patient, and heart failure in two.

Medical Journal of Australia, Sydney

Dec. 22, 1917, **2.** No. 25

24 Trench Nephritis. W. M. Shepherd and L. J. J. Nye.—p. 514.

December 29, No. 26

25 Use of Giant Magnet. J. L. Gibson.—p. 533.

Practitioner, London

January, 1918, **100.** No. 1

26 Mental War Cripples. G. H. Savage.—p. 1.
27 Treatment of Tuberculous Disease of Larger Joints and of Spine. H. F. Waterhouse.—p. 8.
28 Treatment of Indigestion. G. Rankin.—p. 21.
29 Dietetic Treatment of Diabetes Mellitus. R. T. Williamson.—p. 35.
30 Venereal Diseases as We See Them Today. J. E. R. McDonagh. —p. 41.
31 Ministry of Health. A. W. Russell.—p. 70.
32 Swallowed Thread as Guide in Instrumentation of Narrowed Esophagus; Report of Case of Cardiospasm in Which Method Was Employed. C. H. Whiteford.—p. 81.
33 Management of Neurasthenia, Psychasthenia, Shell Shock and Allied Conditions. F. C. Forster.—p. 85.
34 Treatment of Whooping Cough by Vaccines. W. M. Gray.—p. 91.
35 Case of Gestation Prolonged to Twelve Months. J. T. R. Miller. —p. 94.

Bulletin de l'Académie de Médecine, Paris

Dec. 18, 1917, **78.** No. 49

36 *High Heels. V. Galippe.—p. 726.
37 *Regulation of the Sale of Proprietaries. Léger and others.—p. 732.
38 *Surgery of the Stomach. Témoin.—p. 737.
39 *Gastropylorectomy for Gastric Ulcer. V. Pauchet.—p. 741.
40 *Cerebral Tetanus. L. Bérard and A. Lumière.—p. 744.
41 *Simplified Intratracheal Injections. M. Mignon.—p. 746.
42 *Eye and Ear Complications of Meningitis. P. Zarzycki.—p. 748.
43 Child Welfare Work in Paris District during Third Year of War. A. Pinard.—p. 751.

36. **High Heels.**—Galippe remarks in connection with the fashion for high heels: "Ce serait mal connaitre la psychologie féminine que de croire, un seul instant, que la coquetterie cédera jamais le pas à l'hygiène." P. Camper of the Hague called attention in 1781 to the crime against physiology of the Louis XV heels, and Onimus again in 1877, when they were again on the crest of the wave of fashion, and Galippe says he has been declaiming against them the last year but that his words have not had the slightest effect even in his own immediate circle.

37. **Regulation of Sale of Proprietaries.**—After prolonged discussion through several weeks the Académie passed resolutions calling for stricter application of the laws in force regarding secret remedies, and demanding that the term "secret remedy" should be defined to mean any medicament, simple or compound, the qualitative and quantitative composition of which is not yet known. Hygienic and alimentary proprietaries—when they are designed for the use of the sick—should also bear on the label the exact indication of their composition. It was reiterated that the aim of the resolutions was to make it impossible for any substance to be administered to the patient without the physician's knowledge.

38. **Surgery of the Stomach.**—Témoin insists that while gastro-enterostomy may prove successful in correcting morbid conditions when mechanical disturbance alone is responsible for them, this does not suffice where there is inflammation or pain. In these cases the pylorus should be resected, with possibly the antrum, removing the inflammatory lesion into sound tissue. By shelling off the vessels there is no need for ligation, and the whole operation is complete in from twenty-five to thirty-five minutes. With his twin forceps, he says, no assistance is required, and there is no traction on or laceration of the tissues while they ensure the asepsis of the field of operation. These conclusions were published last year on the basis of 117 operations of the kind, and he now reports on an additional series of 56 cases. Five died in this last series, but four of the deaths were explained by other causes.

39. **Gastropylorectomy.**—Pauchet declares from twenty years of experience and over a thousand operations on the stomach that the majority of disturbances from dyspepsia are not accompanied by any lesion in the stomach. Usually the dyspepsia is of reflex origin, from some lesion in the gallbladder, a kink or tumor in the bowel, appendicitis, ptosis of stomach or colon or both, or from morbid conditions in the lungs, heart or kidneys, tabes or acetonemia. When the disturbances are actually of gastric origin and are chronic or recurring, a gastric or duodenal ulcer is almost certain, the latter especially if the patient is a man. Gastric ulcer is almost always on the lesser curvature. Acute recent gastric ulcer often heals under repose, ulcer diet and bismuth. The other cases in his experience were of long standing but the symptoms were far from the classic set of symptoms, and the cases had been labeled hyperchlorhydria, nervous dyspepsia, Reichmann's disease, etc. In 80 per cent. of his gastric cancer cases the cancer had developed on the basis of an ulcer, and the ulcer had seldom been recognized. The only operation for gastric ulcer that cured completely and permanently was gastropylorectomy, and this he advocates as the routine procedure. He makes a point of examining directly the posterior aspect of the stomach. The portion of the stomach to be resected is shelled free from vessels with a compress and no ligatures or forceps are required for hemostasis. After resection between clamps, the two stumps are each sutured to make a blind pouch. After the operation the patient's diet must be strictly hygienic to protect the insufficient liver, kidneys and glands which evidently cooperated in the production of the ulcer.

40. See Paris Letter.

41. **Intratracheal Injections.**—Mignon combines traction of the tongue with pushing the epiglottis out of the way with the finger. This facilitates intratracheal injection of a fluid, without special illumination or assistance. The epiglottis is pushed down with the left index finger until it rests on the drawn-out tongue. This opens the larynx wide while reducing the opening into the esophagus to the minimum.

42. **Ear and Eye Complications of Meningitis.**—Zarzycki found complications on the part of the eye or ear in about 15 per cent. of his numerous cases of epidemic cerebrospinal meningitis. Every eye or ear affection when meningitis is prevalent should be suspected and bacteriologic examination made, with prompt serotherapy if the findings are positive. He applies the antiserum locally also, injecting it at need into the lacrimal sac or under the conjunctiva.

Lyon Médical

December, 1917, **126**, No. 12

44 *Acute Bacillary Dysentery. P. Dufourt and A. Devic.—p. 541.
45 French Pioneers in Heliotherapy. G. Rivier.—p. 552.
46 *War Wounds of Joints. R. Leriche.—p. 556.
47 War Bread. R. Lépine.—p. 578.

44. **Acute Bacillary Dysentery.**—Dufourt and Devic insist that the antiserum should be given early in large and repeated doses. If it fails to relieve promptly and ensure a brief convalescence, mixed infection should be suspected. The excessive loss of fluids must be combated vigorously, having the patient drink at brief intervals small amounts of aromatic rice water, tea, much sweetened decoctions or vegetable bouillon. Large amounts of fluids should not be given the patients but small amounts should be distributed among them every hour or half hour. Fractioned in this way, the fluid is absorbed rapidly and in the upper intestine. In urgent cases, artificial serum is called for, from 500 to 1,000 c.c., with a little epinephrin or suprarenal extract in case of suprarenal insufficiency. Highly sweetened drinks are nourishing, and also milk boiled and skimmed, a third or half a liter, taken in very small amounts at a time. The frequent watery passages, soiling bed and body linen, require that an actual zone of protection should be arranged about each person with bacillary dysentery. The passages and linen must be sterilized at once, and every one approaching or touching the sick should wash the hands frequently, at least before eating. Contagion can thus be warded off, and prophylactic serotherapy is unnecessary. As it protects for only about ten days, it is useful only for the attendants.

46. **War Wounds of Joints.**—Leriche emphasizes certain points which experience has demonstrated to be of importance in treatment of war wounds of joints. One is the necessity for primary suture in the early treatment of wounds of the synovial membrane with or without a foreign body. Time has also shown that an early secondary suture is often possible when the primary suture was out of the question. It is better to do it early than later, the second, third or fourth day, if it can be done then. The ultimate outcome has shown that a lateral arthrotomy is preferable to a transverse opening of the joint through the tendon; also that a small bone lesion or one far to the side should not modify the general line of treatment; also that it is dangerous to leave a deep ragged wound in the epiphysis enclosed in the synovialis, both on account of possible flaring up of infection later, and on account of the danger for the functioning of the joint. When the parts of the joint have been injured to such an extent as to throw the joint out of gear (*disloquer la statique articulaire*), resection is preferable. Another point learned from experience is the advantage of subperiosteal resection at all stages. Leriche has consistently advocated primary resection, but insists on the necessity for conservation of the periosteum with extreme care. This requires the patient methodical use of a cutting rasp or bone-scraper (*rugine*). The aim is to retain a periosteum-capsule sheath, assuring the continuity of the sustaining soft tissues of the joint leaving the supporting ligaments intact and also the muscles and tendons attached to it. This sheath holds the parts in place and maintains the normal outline of the joint. As bone tissue proliferates, this sheath guides it into proper proportions, while the normal play of the muscles models the newly formed soft bone. The articulation is thus reconstituted on the preexisting physiologic type. The operation consequently must be inside the capsule and done extremely cautiously, sacrificing everything to the physiologic conception and the concern for the ultimate result. This is Ollier's method and it is giving results now more brilliant than even Ollier hoped for.

Presse Médicale, Paris

Dec. 6, 1917, **25**, No. 68

48 *Classification of Tachycardia. A. Martinet.—p. 693.
49 *Prophylaxis of Secondary Hemorrhage from War Wounds. Revel. —p. 694.
50 Crile's Anoci-Association. J. Luzoir.—p. 695.

Dec. 13, 1917, **25**, No. 69

51 *War Wounds of the Hip. V. Pauchet.—p. 701.
52 *Mechanism of the Seroreaction in Syphilis. A. Vernes.—p. 704.
53 *Adjustable Screw Extension for Fractures. C. Willems.—p. 706.

48. **Classification of Tachycardia.**—Martinet discusses paroxysmal, temporary and more or less permanent tachycardia, saying that the paroxysmal form should be suspected when the pulse is over 110 and there is no goiter or fever and the rate is not sensibly modified by change from the horizontal to the vertical position. The accidental or temporary tachycardia may be traced to fever, exercise, to change of position, emotions, pain or toxic influences from tea, coffee, kola or theobromin. The more or less permanent tachycardia without actual heart lesions is encountered with exophthalmic goiter or as a neurosis, and he emphasizes that every feature of a tachycardia neurosis is identical with those of the exophthalmic goiter tachycardia—even the morning exacerbation—"the only difference between them is the neck." There is in both evidently intense excitation of the sympathetic which not only accelerates the heart action but has a vasoconstricting and pressure-raising action. He has encountered several cases in which all the types of tachycardia were observed at different times, finally settling down into the exophthalmic goiter type.

49. **Prophylaxis of Secondary Hemorrhage.**—Revel insists on the necessity for systematic exploration of the vessels in case of a war wound. The vessels in the region may be injured at more than one point, and hence they should be thoroughly investigated at once as the only means to ward off secondary hemorrhage. He had twenty cases of secondary hemorrhage before this thorough exploration was made the routine procedure, but since then it has been warded off. The injury of the vessel may heal spontaneously if the wound is aseptic, but even imperceptible latent infection may be enough to start the secondary hemorrhage in these cases of dry vascular wounds or when the wound is close to some large vessel.

51. **Resection of Hip Joint for War Wounds.**—Pauchet gives twelve illustrations showing the various procedures required for different kinds of war wounds of the hip. He also shows the preferable plaster cast and the spring separate sole that holds the foot up, to ward off equinism.

52. **Seroreaction in Syphilis Placed on Mathematical Basis.**—Vernes gives a number of diagrams showing the varying precipitation of colloids with different proportions of certain drugs or other substances added to them. He refers in particular to the colloids in human serum. He distributed in a set of test tubes 2 c.c. of a fine suspension of ferric hydroxid (*hydrate de fer jaune*) prepared with 0.225 gm. ferric acetate in 250 c.c. of distilled water. To each tube is then added a graduated amount of normal human serum diluted in enough 9 per thousand saline to make a constant amount of 0.2 c.c. The diagram shows that there is complete flocculation on addition of some of these graduated amounts while there is none with other amounts. When the normal human serum has been added in proportions of 0.2:1.5 c.c. down to 0.2:10 c.c. there is complete flaking, but there is no flaking with from 0.2:12 c.c. to 0.2:40 c.c. Then in the tubes with from 0.2:41 to 0.2:90 c.c. flocculation is complete again, but with lesser amounts of the serum than 0.2:90 c.c. there is no further flaking. When syphilitic serum is used, precipitation occurs more readily and earlier in each of these phases. This is a differentiating reaction with syphilitic serum which seems to be constant and reliable, when the test fluid is made with care to produce a fine suspension of a given stability so that precipitation will occur with syphilitic and not with normal serum.

The suspensions used to date for the Wassermann and other serologic tests have been empirically determined.

Vernes' research, he declares, places it on an exact basis. The suspension found most convenient was prepared by grinding in a mortar 0.04 or 0.05 or 0.1 gm. pure ferric acetate with a little distilled water, then decanting, grinding anew with a little more distilled water and decanting, repeating this until there is no more of the ferric acetate in the mortar. Then more water is added to bring the whole to 250 c.c. The suspension is then heated to boiling in a porcelain capsule and boiled hard for twenty minutes, adding more water repeatedly to keep the level at 250 c.c. The fluid is then set aside to cool and is brought up to exactly 250 c.c. with distilled water. This fluid is then distributed in a set of small tubes, 2 c.c. in each, and to each tube is added the serum in progressively decreasing amounts as stated above. The periodical rhythm of precipitation or nonprecipitation differs characteristically with syphilitic and with normal serum. With a 0.04 suspension of the ferric acetate in 250 c.c. of water, precipitation with normal serum does not begin until past the figure 0.2:9 c.c., while with syphilitic serum it begins already with 0.2:3 c.c. Syphilitic serum thus displays greater precipitating power than normal serum, and the flaking zones are thus widened.

53. **Screw Extension for Fractures.**—Willems gives illustrations of a method for adjustable extension, driving a long screw into the condyles or above the malleoli on each side of the leg. Each screw carries a ring from which a chain is suspended, the lower ends of the chain holding a crossbar. The force for extension is applied to the center of this crossbar some distance below the foot. An upright fastened in the plaster splint permits suspension also, and a strap from the upright arch prevents the forepart of the foot from dropping into the equinus position.

Progrès Médical, Paris

Dec. 1, 1917, **32**, No. 48

54 *Pyelonephritis Following War Wounds. R. Uteau and R. Schwab.—p. 403.
55 Tardy Meningitis. A. Challamel.—p. 404.
56 *Camp Bed. Bonnette.—p. 406.

Dec. 8, 1917, **32**, No. 49

57 *Recent Acquisitions in our Knowledge of Malaria. A. Bernard.—p. 413.
58 *Treatment of Malaria. Leenhardt and L. Tixier.—p. 424.
59 Hibernation of the Anopheles in Southeastern France. L. Léger and G. Mouriquand.—p. 426.
60 Management of Hospital for Malaria. C. Garin and C. Pasquier.—p. 427.
61 Novarsenobenzol in Treatment of Malaria. A. Bernard.—p. 429.

54. **Pyelonephritis after War Wounds.**—Uteau and Schwab report four cases in which pyelonephritis consecutive to a war wound persisted interminably, with complete failure of medical measures, up to two years. In three of the four men, functional tests showed the second kidney was not working quite properly—evidently a sympathetic disturbance. There was a foreign body in one case and the kidney was exposed and incised. The projectile was not found; it proved to be in the abdominal wall, but the nephrotomy was followed by prompt and complete subsidence of the pyuria, and they commend simple nephrotomy as the routine treatment in such cases. The only objection to it is that the men with simple pyuria from this cause may refuse to permit nephrotomy as they do not want to be cured and sent back to the front, not being incommoded by their pyuria.

56. **Camp Bed.**—Bonnette gives an illustration of a bed made from four planks. One is cut up to form the end supports which hold the other three planks firmly without screws or cords.

57. **Malaria in France.**—Bernard says that the campaign in Macedonia has resulted in the contracting of malaria by thousands of the French troops who have since scattered it all over France. He regards the definite cure or sterilization of the malaria patients as impossible, and hence destruction of the hematozoon is difficult. The best prophylaxis is to send the malarial soldiers to hospitals in a mountain district where there are no mosquitoes. The most promising outlook for treatment is by watching out for the appearance of schizonts in the blood. The gametes become transformed into schizonts and as soon as the latter have produced enough toxins, the attack of malaria develops unless the schizonts are destroyed by quinin or novarsenobenzol during this susceptible stage. By examining the blood every third day, this transformation into schizonts can be detected early and the schizonts can be killed off with these drugs as fast as they appear, and the attack can thus be warded off. It is hard to get the men to submit to these repeated examinations as they do not feel sick between the attacks. It has been found well to group the malarial men in farm colonies, with strict medical supervision; the results have been excellent. Nearly two pages of recent bibliography on malaria are appended.

58. **Treatment of Malaria.**—Leenhardt and Tixier extol the advantages of giving quinin by the intramuscular route as they have found it so effectual in their service, no further parasites being found in the blood. Time alone will tell whether the disease has been definitely eradicated. In over 5,000 injections of the kind in a five month period they have never had suppuration.

Revue Médicale de la Suisse Romande, Geneva

December, 1917 **37**, No. 12

62 *Anatomic Effects on the Lung of Induced Pneumothorax. R. Burnand.—p. 729.
63 *Eosinophilia after Resection of Sciatic Nerve. N. Loewenthal.—p. 740.
64 *Creatinin Content of Blood. J. Tchertkoff.—p. 748.
65 *Prosthesis for the Nose. Veyrassat.—p. 754.
66 Case of Pneumic Hypertrophic Osteo-Arthropathy. G. A. Guye.—p. 760.
67 *Ileus Induced by Bunch of Glands. G. A. Guye.—p. 769.

62. **Anatomic Effects of Induced Pneumothorax.**—Burnand reports the findings in five cadavers. The progress of lesions in the other lung had resulted fatally notwithstanding the benefit from the induced pneumothorax in the lung first affected. The pneumothorax had lasted from three and a half to eighteen months. The necropsy findings in all testified to a manifest and intense curative action on the tuberculous focus from the compression. They show further that true anatomic healing is still remote or fragile, even when the clinical manifestations seem to demonstrate a complete cure. They testify further to the fact that artificially induced pneumothorax is after all merely a palliative procedure, which explains the mishaps later. All this should not discourage, he says, but should stimulate us to perfect the method with more prudence, more therapeutic perseverance, and greater caution in the use of the term "cured."

63. **Eosinophilia after Resection of Sciatic Nerve.**—Loewenthal gives a colored plate showing the findings in the inguinal glands after resection of the sciatic nerve in rabbits.

64. **Determination of Creatinin in the Blood.**—Tchertkoff describes a technic with which it is possible to detect grave insufficiency of the kidney by the creatinin content of the blood. With only 15 c.c. of blood serum it is possible to ascertain the creatinin content and also the indican and urea content, and thus obtain deep insight into the kidney functioning. He says that the normal creatinin content does not surpass 18 mg. to the liter of serum. Above 25 mg., retention is certain. First there is retention of urea, then of creatinin and, later of indican. As the kidney functioning improves they disappear in reverse order. The serum is freed from albumins with an equal quantity of a 20 per cent. solution of trichloracetic acid. After agitation it is filtered, and to 2.5 c.c. of the filtrate is added an equal amount of a saturated solution of picric acid and 1 c.c. of a 20 per cent. solution of sodium hydroxid. By the end of fifteen minutes the fluid changes in tint to a yellow or orange, proportional to the creatinin content. If the tint in ten minutes is still light yellow, the creatinin content is probably within normal range. Above 35 mg. to the liter, the tint shows orange or even red. With a colorimeter the exact figure can be determined.

65. **Restoration of the Nose.**—Veyrassat gives an illustration of the fine result obtained by using a sliver from the

tibia to form a support for the upper half of the nose which had been shot away. He then expatiates on the necessity for general anesthesia in such cases, as the measures for local anesthesia depress the vitality of the tissues and separate the layers of tissues.

67. **Ileus from Enlarged Glands.**—In the case described by Guye a tuberculous process in the hip joint had caused an inflammatory reaction in the prevertebral glands, and this in turn induced the obstruction of the bowel. Except for the sudden onset of symptoms, there was nothing to suggest acute invagination. The laparotomy disclosed no cause for the ileus except a bunch of ten enlarged glands adherent to the lumbar spine, and connected with the inguinal region by a chain of enlarged glands. No attempt at resection was made. There was no movement of the bowels until thirty-six hours later, and the gland tumor gradually retrogressed. The operation thus seems to have been superfluous but, owing to the difficulty of differentiation in such cases, it is better to err on the safe side and ascertain the nature of the tumor palpated, even although the general condition continues good. The operation was deferred in this case until the pulse suddenly ran up to 120, although the temperature kept normal and the child had vomited only twice in the last twelve hours.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Dec. 15, 1917, **47**, No. 50

68 *Maternity Tetany. H. Guggisberg.—p. 1713.
69 Is a Higher Birth Rate Desirable? A. Goenner.—p. 1722.
70 *Relations between Tuberculosis and Shriveling Processes in Liver and Kidney. S. Schönberg.—p. 1726.

68. **Tetany in the Pregnant and Parturient.**—Guggisberg comments on the comparatively frequent occurrence of tetany in pregnant or puerperal or nursing women although so few cases are reported. He thinks it must sometimes be mistaken for hysteria. It occurs more frequently in certain districts and at certain times. The symptoms generally appear first during the last half of pregnancy in women who have borne several children, and it returns in later pregnancies, in a more pronounced form and earlier. In severe attacks there may be total loss of consciousness. Sometimes there may be only one attack or there may be a series, with contracture in the intervals. One woman complained that she was unable to use her fingers in knitting during the intervals. There may be psychic disturbances; in one case there was loss of memory. Trophic changes in the hair, the nails and the crystalline lens were observed in some cases. The characteristic spasms affect mainly the arms although other groups of muscles may be involved. The Trousseau and Chvostek signs aid in differentiation; the former can be elicited only with tetany. The Erb phenomenon is also an important sign. The children of women with severe maternity tetany may be quite healthy or develop tetany themselves. The clinical picture of tetany suggests the action of some toxin. There is acidosis, an increase in the hydrogen ions in the blood, and there is much to sustain the assumption that the disturbance in the metabolism under the influence of the maternity deranges the functioning of damaged parathyroids, which under other conditions are equal to their task. Guggisberg removed the parathyroids from rabbits and then was able to bring on tetany at will by injecting placenta extract. This confirms the assumption that the endocrine function of the placenta is involved in the production of tetany. It is significant, he adds, that the so-called pregnancy toxicoses are practically never encountered in the puerperal tetany cases. The parathyroids from a cadaver might be grafted to cure severe tetany, but nothing in this line in treatment of puerperal tetany has been published. Parathyroid preparations have given good results in some cases, and even thyroid treatment, but they have failed completely in others, and serotherapy has also failed in the clinic although giving good results in experimental research.

Calcium is the main reliance in treatment. Guggisberg's experience with it confirms the favorable reports of others. In one case of very severe, recurring maternity tetany, with cyanosis and loss of consciousness during the attacks, he succeeded in arresting them by giving 1 gm. calcium lactate four or six times a day. The woman was seven months pregnant, and delivery occurred normally. Milk and vegetables are useful on account of the high calcium content. As little salt should be used as possible, to reduce the amount of sodium in the organism, thus clearing the field for the calcium salts. He warns that morphin, ergot, atropin, calomel, tuberculin, pituitary extract, chloroform and ether should all be avoided when there is a latent tendency to tetany, as they are liable to bring on an attack, as has been repeatedly confirmed in animals. As the attacks of tetany are accompanied by much pain, sedatives may be indicated, but chloral or bromids should be given the preference. The course of puerperal tetany is generally favorable but there are cases on record with a fatal outcome. Some advocate hastening the evacuation of the uterus, but he thinks that it is much wiser to leave this to Nature, smoothing the way for it and restricting medication to the minimum.

70. **Tuberculosis as a Factor in Chronic Kidney and Liver Disease.**—Schönberg has found cirrhosis of the liver quite common in tuberculous cadavers at Basel. In some cases no evidence of tuberculosis could be found elsewhere but the discovery of tubercles in the cirrhotic liver or contracted kidney confirmed the tuberculous element. Similar liver findings were encountered also in cattle. In the cattle they formed the connecting link between the experimentally induced cirrhotic processes in the livers of tuberculous guineapigs and the spontaneous cirrhosis of the liver in man. Hössly found cirrhosis of the liver in Greenland where there is no liquor drinking but where tuberculosis is very prevalent. Schönberg is convinced that tuberculosis is liable to play a predominant rôle in the development also of contracted kidney. Among the cases cited to sustain this view is that of a woman of 25 with the clinical symptoms of pronounced contracted kidney; necropsy showed a combination of arteriosclerotic and true contracted kidney. The kidneys were also studded with tubercles and tubercle bacilli were found, but no other signs of tuberculosis elsewhere could be detected. In another case the urine contained pus and tubercle bacilli supposed to come from the left kidney. This kidney was removed but showed no anatomic signs of tuberculosis, presenting merely the aspect of contracted kidney, except for the tubercle bacilli found in it.

Policlinico, Rome

Dec. 9, 1917, **24**, No. 50

71 History of Introduction of Antimony in Treatment of Leishmaniosis. R. Jemma.—p. 1457.
72 Paroxysmal Hemoglobinuria in Child with Inherited Syphilis. V. Russo.—p. 1466.
73 Morphology of the Tubercle Bacillus. P. Mariconda.—p. 1467.

December, 1917, **24**, Medical Section No. 12

74 *Diagnosis of Pulmonary Tuberculosis. A. Signorelli.—p. 469.
75 Roentgenoscopy of Ileocolic Invagination. L. Mancinelli.—p. 484.
76 Analysis by Roentgenoscopy of Pains in the Stomach. P. Alessandrini.—p. 491.
77 Roentgenoscopy of Supernumerary Bones in the Feet. C. Guarini.—p. 498.
78 *Preventive Intravenous Vaccination against Meningitis. G. Quarelli.—p. 501.

74. **Diagnosis of Pulmonary Tuberculosis.**—Signorelli discusses this question from the military standpoint, and emphasizes in particular the importance of the roentgen findings.

78. **Vaccination against Meningitis.**—Quarelli relates favorable experiences with autogenous vaccines injected by the vein in prophylaxis of epidemic meningitis.

Rivista Critica di Clinica Medica, Florence

Dec. 8, 1917, **18**, No. 49

79 *Metabolism in Exophthalmic Goiter. C. Capezzuoli.—p. 489. Commenced in No. 47, p. 469.

Dec. 15, 1917, **18**, No. 50

80 Relapses in Malaria. C. Bartolotti.—p. 501.
81 *Multiple Osteomyeloma with Albumosuria. A. Martiri.—p. 506.

79. **Metabolic Findings in Exophthalmic Goiter.**—Capezzuoli reviews representative literature on exophthalmic goiter, especially the results of operative treatment. His own experience suggests that authors might find on reexamination later that some of their cases reported as cures have had the symptoms return. This occurred in one of the two cases he

reports with minute details of the metabolic findings. The cure in the case of the woman of 27, after removal of four fifths of the thyroid, was so complete that even the various metabolic findings had changed to the normal type by the end of three months. The only symptom left was that the eyes still protruded somewhat, but not so much as before the operation. After several months of apparent cure the symptoms returned and the part left of the thyroid enlarged. By the end of the year the woman was having an attack of tetany every twenty or twenty-five days, but otherwise the symptoms never reached the intensity of the preoperative period until after a fright at the twentieth month. Then general agitation and attacks of unconsciousness with cyanosis were occasionally observed, in addition to the other symptoms, but the general condition kept good and the woman gained several pounds in weight during her two or three months in the hospital. The heart symptoms improved and under parathyroid treatment, phosphorus and bromids, the symptoms became much attenuated and there have been no serious ones since. If the case had been published within nine months of the operation, it would have been reported as a brilliant success from operative treatment. In some of the cases on record recurrences have been known after eight, nine or more years. Capezzuoli's general conclusions are that every case of goiter with a tendency to the exophthalmic type and evidences of a progressive course demands operative treatment without further delay unless contraindicated by advanced cachexia or heart or kidney disease or diabetes. A preliminary course of medical measures should always be tried and tried again. The heart symptoms are those that benefit most by operative measures, the exophthalmos least. Almost the main thing, however, he thinks, is to impress on the patient that the dietetic and medical restrictions will have to be kept up perseveringly after the operation as before, to ward off relapses.

81. **Osteomyeloma with Albumosuria.**—Martiri warns that the albumosuria may not appear for several months in cases of Kahler-Bozzolo disease, and it may fluctuate, so that lack of albumosuria does not disprove the diagnosis.

Cronica Medica, Lima, Peru

December, 1917, **34**, No. 654

82 *General Paralysis. C. A. Bambaren.—p. 431.

82. **General Paralysis.**—Bambaren reviews the international literature of the last few years on the subject of general paralysis, and analyzes his own experience. No benefit was observed in his own cases in which intravenous injections of neosalvarsan were systematically given. In three other cases he gave intraspinal injections of mercurialized serum, a commercial preparation. In one case the pupil reflexes returned to approximately normal, but the psychopathic symptoms persisted unmodified. The spinal cord and brain seem to feel the action of the virus at the same time as the skin, that is, in the secondary phase of the disease, probably because they all are derived from the ectoderm. Hence the necessity for examining the meningeal reaction during this stage of syphilis, bearing in mind Fournier's statement that he found lesions of the central nervous system most frequent in persons who showed no or very slight lesions during the secondary phase. The cerebrospinal fluid may show globulins, pleocytosis and positive Wassermann reaction even when the Wassermann reaction in the blood is negative. Besides these biologic signs of impregnation of the nervous system with the virus, the physical and psychic symptoms aid in the diagnosis at an early stage or permit prophylactic treatment. In every case of general paralysis, spinal treatment should be tried or the medication applied directly to the subdural space and cavity of the ventricles. Among the methods of treatment in vogue, he thinks Ogilvie's serum salvarsanized in vitro has certain advantages (The Journal, Nov. 28, 1914, p. 1936). Remissions are noted in from 25 to 35 per cent. of the cases of general paralysis treated by these various measures where formerly, according to certain authorities, they averaged only 3.9 per cent. Of course treatment must be begun early to count on favorable results.

Gaceta Medica de Caracas

Sept. 15, 1917, **24**, No. 17

83 *Staphylococcus Septicemia. R. M. Jimenez.—p. 155.

Sept. 30, 1917, **24**, No. 18

84 *Amébiasis. C. E. Salom.—p. 168.

85 Emetin in Superficial Leishmaniosis. A. da Matta.—p. 169.

83. **Staphylococcus Septicemia.**—Jimenez queries whether the tropical climate may not have been the determining factor in some cases described in which a small furuncle or acne tumor developed on the lip or nostril, and high fever set in with prostration, delirium and death within three days. He was unable to find in European records any such series of fulminating staphylococcus septicemia cases within a comparatively short period.

84. **Amebiasis.**—Salom remarks that, next to malaria, amebiasis is the most serious endemic in Venezuela. It appears in different forms in different districts but reaches its height during the warm weather and dies out as cold weather approaches. He calls attention to the third phase of amebiasis; after the intestinal and visceral phases there is liable to be a nervous stage, a polyneuritis of amebic origin. This latter phase is not mentioned in the classic descriptions, but he has known of cases in which fulminating and fatal polyneuritis developed in chronic ameba carriers. In others —who had taken emetin—the polyneuritis was peripheral and mild. It is probable that polyneuritis from this cause has sometimes been mistaken for beriberi. There is a severe epidemic of polyneuritis raging now in the mining district of Cuyuni; the diagnosis wavers between beriberi, malaria and amebic polyneuritis. Bacteriologic examination is the only means of differentiation. Emetin is the main reliance in treatment in all phases. In the polyneuritis phase he gives it subcutaneously along with strychnin, calcium and the glycerophosphates with heart tonics as needed. During the intestinal phase, he disinfects the bowels with salol or benzonaphthol in addition to the emetin subcutaneously. The diet is restricted at first to milk, tea and rice water.

Revista Medica del Rosario, Argentina

December, 1917, **7**, No. 6

86 *The Viscosity of the Blood in Relation to Heart and Kidney Disease. R. A. Brandan.—p. 403.

87 Cholecystectomy for Gallstones. J. B. Abalos.—p. 434.

88 Noninfectious Elephantiasis. (Linfo-escroto.) J. Mazzini.—p. 463.

89 Prophylaxis of Tuberculosis in Argentina. C. Alvarez.—p. 472.

90 *Melanodermia plus Keratodermia in Bell Ville. C. Alvarez.—p. 485.

86. **Viscosity of the Blood as Influencing Treatment in Heart and Kidney Disease.**—Brandan presents evidence to show the importance of the viscosity of the blood as an element in the clinical picture with chronic heart and kidney disease that must be taken into account in treatment. When the arterial pressure is high and the viscosity above normal, the indications are for a purge plus venesection. The latter by withdrawing whole blood leaves a vacuum into which rushes the water retained by the diseased kidneys. This reduces at once the excessive viscosity of the blood, while the purgation carries off the excess of fluids in the body which aid in keeping the arterial tension high. On the other hand, when the tension is high and the viscosity low, purgation is indicated but venesection should be avoided, especially when there is a tendency to hemorrhages. If the arterial tension is low while the viscosity is high, purgation is dangerous, as it withdraws the water from the blood leaving it with such viscosity that the heart is unable to manage it normally. Venesection, on the contrary, is always beneficial here as, in itself alone, it promotes diuresis and paves the way for the more effectual action of digitalis. He uses a viscosimeter that compares the viscosity of the blood with that of distilled water.

90. **Regional Melanodermia plus Keratodermia.**—The heading under which this subject is treated is "The New Disease Discovered at Bell Ville." Alvarez and others demonstrated typical cases and stated that they know of about forty cases in all. The main symptoms are the dark discoloration, mostly

on the trunk, with hyperkeratosis of palms and soles, disturbances in the peripheral circulation and in some cases ascites or neuritis. Death usually occurs in two years but sometimes not for four or five years. The affection seems to be restricted to the Rosario region, and all agree that the strong arsenic content of the drinking water is probably responsible for it. Pusso found in the Bell Ville water 0.0028 gm. arsenious acid—a proportion sufficient to account for this regional chronic arsenic poisoning. Goyenechea who has been studying it for four years noticed that poultry running free and drinking rain water seemed to be normal, but poultry confined and supplied with the family drinking water had unusually fine plumage but the liver was often abnormally large and all the organs showed signs of fatty degeneration. In man, anesthesia and paralysis such as are observed with arsenical poisoning are common, and also vasomotor and trophic disturbances and local anemia in feet and hands, sometimes accompanied by intense pain. One woman with goiter and large liver, improved materially under antityphoid treatment.

Siglo Medico, Madrid

Nov. 10, 1917, **64**, No. 3335

91 *Intraspinal Treatment of Syphilis of the Nervous System. E. F. Sanz.—p. 846.
92 *Angina Pectoris. C. Calleja.—p. 849. Concluded in No. 3338, p. 910.
93 Pathogenesis of Cholelithiasis. A. Medina.—p. 852.

Nov. 17, 1917, **64**, No. 3336

94 Appendicectomy on Twelve Hours' Old Infant. M. Vargas.—p. 870.

91. **Intraspinal Treatment of Syphilis of the Nervous System.**—Sanz regards the use of mercurialized or salvarsanized autoserum or spinal fluid as rich in promise in treatment of tabes, general paralysis and cerebrospinal syphilis, but he warns that with the two latter affections the course is liable to have sudden ups and downs which might prove disastrous if a serious exacerbation happened to coincide with the application of this treatment. He cites from his own experience a case of general paralysis of hitherto mild course in a young woman with no other appreciable organic lesion. He proposed intraspinal treatment but she died the evening beforehand, with symptoms suggesting apoplexy. He regards this treatment as especially promising in tabes. No other treatment in this disease offers any chance of success. He always precedes this intraspinal treatment with a course of mercury and salvarsan intravenously, and he has never had any serious by-effects with tabes although he knows of such in the practice of others who are not so extremely cautious in technic and dosage as he is. In his experience with tabes, the majority of the subjective symptoms disappeared, the incoordination became more or less corrected and the general condition improved. Even the knee jerk returned permanently on both sides after the mercurialized autoserum treatment. The method seems to be undoubtedly effectual, but there is always a local reaction, pains in the lumbar region spreading to the limbs, with a dragging and other disagreeable sensations. Tabetics also shrink from having blood drawn to supply the necessary serum. The cerebrospinal fluid, it is said, does not contain enough albumin to saturate the mercury. He used mercuric chlorid, from 0.5 to 3 mg., for the injection repeating it a month later in the tabes cases, increasing from the smallest to the largest amount mentioned. He always mixed with it some of the cerebrospinal fluid just drawn, the total fluid injected being kept always less than the amount of the total spinal fluid withdrawn. In one case he treated a circumscribed lesion in the lumbar spinal cord by the intraspinal injection, and a violent reaction on the part of the meninges followed, with fatal outcome.

92. **Angina Pectoris.**—Calleja argues that the symptoms known as angina pectoris are of nervous origin, the result of some disturbance in the vegetative nervous system, causing paralysis of the muscles of expiration. Owing to this sudden paralysis, the individual is unable to expel the breath in his lungs but he keeps on inhaling, taking in deep breaths which increase the pressure in the chest and impede the circulation in the chest. Any one, he says, can induce similar painful sensations by breathing deep and holding the breath a long time. It is a neuropathy and not a cardiopathy, although the two may be associated. The primal cause is some intoxication, tobacco, alcohol, from overeating, lack of exercise, syphilis or other infectious cause. Any lesions found in the chest are casual, not causal. The immobilization of the thorax may be accompanied by high blood pressure, but he has had patients with normal pulse throughout an attack. Symptoms have been confused with causes. In the purely painful type, morphin is called for; in the type with extreme distress, amyl nitrite or trinitrin, or both in the mixed type. But the doses should be very small, not to superpose further toxic action on the nerves.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Nov. 10, 1917, **2**, No. 19

95 *Spiral Incision Treatment of Varices. W. P. J. Hoogveld.—p. 1743.
96 *Prophylaxis of Contagious Diseases. H. Waller.—p. 1754.
97 Do Animals Suffer Pain? J. Roos.—p. 1756. G. van Rijnberk.—p. 1759.
98 Another Case of Splenomegaly (Gaucher). C. Ide.—p. 1761.
99 Factitious Edema of the Hand. P. H. van Roojen.—p. 1764.

95. **Spiral Incision Treatment of Varices.**—Hoogveld has recently reexamined thirteen out of nineteen patients who had been treated between 1908 and 1915 for extensive varicose veins by the Rindfleisch-Friedel method of a spiral incision. In eight of the patients both legs had been treated in this way. The outcome has confirmed that this method, notwithstanding its many drawbacks, deserves a place in treatment, especially of very extensive varices with complicating elephantiasis or leg ulcer, when simpler measures do not answer the purpose. Experience has shown that ligation of the saphena magna in the thigh should not be neglected. The number of turns of the incision depends on the extent of the lesions, the uppermost turn being made well above the upper visible enlarged veins. Primary healing of the incision is not desired; the aim is to induce the formation of a deep-reaching, solid cicatrix which, at least for some time, will prevent the vessels from becoming permeable again. None of the patients reexamined had had any disturbance from the severing of the nerves in the skin, and none were incommoded in any way by the scar. In five of the severer cases the results were most excellent. The ulcers healed and the edema and stiffness noted at first soon subsided. All had regained full earning capacity. The greater the number of turns the more effectually the desired purpose is realized. In one severe case, shown before and after, the spiral incision started above the knee and made five turns around the leg to the ankle; there is no trace of varicose enlargement to be seen on the legs now.

96. **Prophylaxis of Contagious Disease.**—Waller discusses various questions in this line saying that cattle are looked after by the state better than human beings, as there are only four medical inspectors for the whole of Holland while there are nine veterinary cattle inspectors. He queries how it can be explained that typhoid bacilli carriers cause so few infections in comparison to their number. Is it possible to distinguish between those with virulent and avirulent bacilli? He adds that during 1914 and 1915 examination of the drinking water gave constantly negative findings although typical cases of typhoid kept occurring. Contemplated legislation calls for examination of blood, urine and stools, but the patients will certainly object to having their blood drawn for epidemiologic purposes, as they derive no direct benefit from it, and as there is no specific treatment for typhoid, the physician's measures are not affected by the outcome. If the findings should happen to be negative, he might be placed in an embarrassing position. The law, Waller specifies, should make provision for suspicious as well as frank cases.

The difference in the severity of different epidemics is also to be borne in mind. Scarlet fever in Amsterdam has been so mild of late years that the aspect of the scarlet fever wards is like that of a vacation colony. In conclusion he emphasizes the difference between conditions in military and civilian life, the less close contact, the greater hardships when strict prophylactic measures are enforced, and the fact that the relations

between civilian physicians and patients are not such as would justify imposing disagreeable and annoying measures. He urges that the staff of state medical officials should be enlarged and the enforcement of prophylactic measures be placed in their hands; otherwise such measures should be optional.

Hospitalstidende, Copenhagen

Dec. 6, 1917, **60**, No. 49

100 *Meningococcus Infection and Meningitis. O. Thomsen and F. Wulff.—p. 1192.

Dec. 12, 1917, **60**, No. 50

101 Durable Gieson-Hansen Preparations. K. Sand.—p. 1221.
102 Determination of Spirochetes in Syphilitic Glands. B. Pontoppidan.—1227.

100. **Meningococcus Infection and Meningitis.**—Thomsen and Wulff state that early in 1917 there were a number of cases of meningitis in the Copenhagen district which differed from the classic type of epidemic meningitis in several respects. Of the forty-two patients all died but one. The exanthem was constant and pronounced; in some it was of the classic petechial type, but in others papular, and in one case it was of the scarlatinal type. Twenty-six of the patients were soldiers or sailors, and infection from the military was known in all but eight of the civilian cases. The search for meningococci was facilitated by marking off an ascites-agar plate into squares and inoculating the squares separately, day by day. They give colored plates of the findings and a cut of a plate thus marked off into fifty-one numbered squares. As the meningococcus requires oxygen for its growth it does not proliferate in the depths of a bouillon culture. By shaking up the ascites bouillon foam forms on top, and if the blood specimen is dropped on this foam it spreads out over its surface and, as the bubbles break, it drops down on the surface of the fluid. In this way the specimen was safely sent to the laboratory where it was set aside for forty-eight hours, and then loops were transferred to freshly prepared ascites-agar. They think this foam method might be useful also with gonococci and other obligate aerobic germs. They succeeded in cultivating meningococci from the blood in three cases one day after the beginning of the sickness; in a fourth case by the third day. In one case they were cultivated directly from scarified petechiae. During these meningitis cases, nine from their environment entered the hospital with the diagnosis "influenza" on account of fever, headache and pains. They all had "sore throat," and all developed an exanthem like those of the meningitis patients except for the petechiae. The spinal fluid was always found limpid and sterile. A comparatively mild meningococcus sepsis might have been the true diagnosis in these cases. All recovered promptly and completely. Their blood from one to three weeks later responded positively to the complement fixation test with meningococci and in six cases agglutinated them.

Among the conclusions from these experiences is that the majority of cases of meningitis must be regarded as metastatic complications of a primary infection of the blood. The meningococci may not be long in the blood stream and their number may not be large, so that bacteriologic examination of the blood may not give positive findings, especially if the culture procedures do not ensure ample supply of oxygen. The data presented seem to show that the meningococci vary in virulence at different periods, and that the virulence is enhanced by repeated passages through one nasopharynx after another. This hypothesis throws light on the varying severity of the cases, the greater virulence during the seasons when people are housed most and are most subject to catarrhal affections, coughs and colds. At other seasons the meningococcus may live as a saprophyte in the nasopharynx of those who have been in contact with meningitis cases. If they develop a catarrhal condition, they disseminate the germs in speaking, coughing, etc., and the passage to another nasopharynx may enhance the virulence of the germs. This would explain the long absence of cases of meningitis in one of the barracks. Then came an epidemic of cases resembling influenza but without exanthem. Then came a number of similar cases with exanthem and this epidemic in turn was followed by the epidemic of true and severe meningitis cases. This assumption explains further why carriers so extremely rarely develop meningitis, and why chronic carriers so seldom give rise directly to meningitis cases. The passage from mouth to mouth naturally occurs more readily, the greater the crowding. In conclusion the writers refer to a forthcoming *Festbind*, to be published by the National Serum Institute in honor of C. J. Salomonsen's seventieth birthday, in which they give further details of their experience and practical conclusions as to the management of carriers and prophylactic antimeningococcus vaccination.

Hygiea, Stockholm

November 16, 1917, **79**, No. 21

103 *Intestinal Cysts. A. Hansson.—p. 1121.
104 *Prophylactic Appendectomy through Hernial Sac. L. Norrlin.—p. 1135.

103. **Intestinal Cysts.**—Hansson remarks that the correct diagnosis was not made beforehand in any of the forty-eight published cases of enterocystoma. As a rule it entails invagination. This occurred in his personal case, described with the necropsy findings. The patient was a girl of 6 who for several months had had diarrhea, sometimes with blood and slight fever. The cystoma was near the ileocecal valve. It projected into the lumen of the bowel and closely resembled Sprengel's case. The cavity of the cyst was filled with a putty-like mass. It did not open into the lumen of the bowel.

104. **Prophylactic Appendicectomy through Hernial Sac.**—Norrlin advocates removing the appendix as a prophylactic measure when operating for inguinal or femoral hernia. He has done this systematically in eighty-one cases, including two infants, 16 and 19 months old, and eleven persons over 50. All but ten were males. In all but one instance the appendix showed macroscopic changes, adhesions, stenosis, fecal concretions, etc. The microscope showed an acute inflammatory process in 25 per cent., and chronic processes in 65 per cent. of the sixty-seven cases examined with the microscope. In one case the appendix showed tubercles. His further experience has confirmed the advantages of this prophylactic procedure, which he has been advocating for five years. The healing and convalescence are the same as after simple herniotomy alone. In one woman he amputated the appendix through a left inguinal hernia. The operation was scarcely more difficult technically than with right herniotomy.

Ugeskrift for Læger, Copenhagen

Nov. 29, 1917, **79**, No. 48

105 The Milk Supply of Copenhagen during the Summer of 1917. V. Schmidt. Commenced in No. 47. (A. Bjørum and V. Poulsen.) p. 1869.
106 Sour Milk Preparations. O. Jensen.—p. 1902.
107 *Disordered Heart Action in Soldiers. E. Jarløv.—p. 1904.

107. **Disordered Heat Action in Soldiers.**—Jarløv remarks that even among the Danish soldiers—who are not on a war footing—disordered action of the heart is common, although typical objective signs of pathologic conditions are seldom found. A large proportion of these men drift into the hospitals sooner or later. Of 840 men in the military infirmary in a recent two months' period, 75 had been sent to the hospital for certain or suspected heart disease. Thorough examination was made of 45 of these; valvular defects were found only in 12; in 7 cases nothing could be found to explain the symptoms except the change from a sedentary to the army life. Eight of the men showed unstable pulse, tremor and dermographism of the suprarenal type, but excessive thyroid functioning was evident in only one instance. All the above 27 cases correspond to the typical picture of disordered heart action. Of the remaining 18, 16 of the men had pulmonary emphysema, which readily explained the heart symptoms. In some they developed for the first time under the military training. The symptoms from emphysema are readily mistaken for heart disease. A casual bronchitis may be the first clue to the real cause of the disturbances. The most serious element in the matter is the influence on the man's mind when he learns that he is supposed to have a heart defect. This is assumed to be incurable, while true heart disease exempts from service. With soldiers, therefore, in particular, one cannot be too cautious in assuming the presence of heart disease.